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This study was an attempt to apply certain concepts from social learning theory to the understanding of certain factors related to eighth-grade girls. Subjects were thought to vary in degree of identification with parents, teachers, and peers and to attribute different academic achievement values to these figures. Subjects (267) came from a midwestern city, Hawaii, and New York. A study of identifying figures and achievement values was made by an especially developed School Attitude Research Instrument (SARI). A card sort of behavior orientations was used. A subsample was studied by the SARI, achievement and intelligence measures. Achievement was found to be related to the subjects achievement motivation, lack of nonconformity, and relative desire for peer identification. These in turn were related to parental identification, and to achievement values of close friends. The subjects identified equally well with each parent and with close friends but less well with teachers. Implications for enhancing motivation of low achievers include working with parents, working with subjects and their close friends in groups. (Author/KJ)

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October, 1968

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Thomas A. Ringness

The University of Wisconsin

Madison, Wisconsin

October, 1968

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SUMMARY

This study was an attempt to apply certain concepts from social learning theory to the understanding of certain factors related to school achievement of eighth-grade girls. Ss were thought to vary in degree of identification with parents, teachers, and peers, and to attribute different academic achievement values to these figures.. In turn, it was thought that Ss' own achievement values would vary, and that Ss' actual achievement might also vary.

A sample of 267 Ss was randomly drawn from the eighth grade population of a large Midwestern city. Study of identifying figures and achievement values was made by an especially developed School Attitude Research Instrument (SARI). A card sort of behavior orientations toward nonconformity, independence, academic achievement, and peer affiliation was also used. A sub-sample of 46 Ss was randomly drawn and interviewed to amplify findings. Results were related to CTMM scores, grade-point-average, and total ITBS scores. Additional samples of 82 Hawaiian Ss and 100 lower SES New York Ss were studied by the SARI and intelligence and achievement measures.

Analysis of results supported the paradigm,

Identifying figure) → S's own achievement) → S's actual
Values of " ") values) achievement.

It was found that this paradigm could be used to differentiate highest, middle and lowest achievers for actual GPA compared to CPA predicted from the CTMM. However, when Ss were grouped similarly on the basis of ITBS scores, this paradigm was not useful. For Ss as a whole, achievement on both measures was related to Ss' achievement motivation, lack of nonconformity, and relative lack of desire for peer affiliation. These, in turn, were related to parental identification, and to achievment values of close friends. Ss identified equally well with each parent and with close friends, but less well with teachers. Achievement values of Ss were like those of parents, but higher than those of close friends. Other findings of less major interest were also obtained.

Implications for enhancing motivation of low achievers include working with parents, working with Ss and their close friends in groups, analysis of achievment separately for GPA and standardized tests, and improvement of the teacher as an identifying figure.

Introduction

This study is an attempt to use social learning theory constructs in the analysis of school achievmenet of eighth-grade girls.

It is well-known that the best predictors of school achievement are the intelligence test and records of previous achievement (Thorndike, 1963). Such prediction does aid in screening and selective grouping of pupils, but it assumes that achievement in relation to ability is stable. This does little to aid schools in improving poor achievement when necessary, or to maintain high achievement levels of successful pupils.

Further, if, as Coleman (1966) has said, the intelligence test usually administered is really an achievement test, one is in the position of saying that "achievement is determined by achievement." What might be more useful for school practice is a study of variables related to, and possibly underlying or causally related to achievement. Some of the variables might be subject to school influence.

One such variable is motivation, which Cattell, Sealy, and Sweney (1966) showed could account for one-third of the variance in their sample, with personality and intelligence measures accounting for another third. In the present study an attempt was made to explore beyond the degree of presence or absence of academic achievement motivation, and to account for differences in motivation by examining Ss' identifying figures, achievement values attributed to those figures, and Ss' own achievement values.

Bandura and Walters (1963) dealt extensively with identification and imitation (or modeling). Germane to the present study is the generally accepted notion that, in early childhood, both sexes tend to identify with the mother. By school age, however, the small boy tends to identify with the father and accepts him as a role model, whereas the small girl continues to identify with the mother. Since in elementary school the teacher is usually female (especially in the lower grades), the role model portrayed by proximate adults is likely to be more consistent for many girls than for boys, although this is not necessarily so. When such consistency exists, there may be a stronger tendency for the child to internalize the values of the models and to accept adult and school achievement standards. (This may be a factor in the usual finding that boys attain poorer school marks than girls of similar abilities.)

However, children do not identify only with parents and/or teachers. In the junior high school there is the beginning of independence from the family structure and acceptance of adult values, and there is a strong peer affiliation. Identification with peers exerts a powerful influence on the child's values, so that it is important to determine the particular values of the peers with whom the child associates. Although peer academic achievement values are not generally found to be as high as those of parents or teachers, there is variation among children. It may be presumed that children of junior high school age may identify with others who are most like themselves in values (as in other ways), so that closely-affiliated peers may reinforce each other's values, but again, this is not necessarily so.

Persons do not, of course, assume all of the attributes of the various identifying figures. Further, such figures (mother, father, teacher, peers) may hold mutually reinforcing or conflicting values. If conflict exists, internalization of a given value may be more difficult. Compromise between values held by differing identifying figures may result; on the other hand, a S's values may reflect the values of those with whom he most identifies. Thus, a S's values may depend on the degree of identification with each figure, and the values held by each.

Some study of such questions has already been made. For example, Ringness (1963) found that in a sample of high SES ninth-grade boys, father identification distinguished between high or low achievers. Since fathers in this group were college-oriented and high achievers themselves, the inference may be made that the boys not only identified with, but modeled their fathers' achievement values. A later study (Ringness, 1965) included all SES groups and failed to show that father identification distinguished high- from low-achieving boys. It was inferred that many fathers did not hold high academic achievement values, so that identification alone, without reference to the values held by the identifying figure, could not meaningfully be related to school achievement.

Coleman (1966) stated that academic achievement is related to social class. Family background seemed to be the most important factor in school achievement. Although the impact of the family might be greatest during earlier years, the importance of this background tends to continue, and outweighs school-determined influences on achievement. The educational background and achievement of other students in the school was considered highly important, as was the extent to which the pupil felt he had some control over his own destiny. In minority groups, the attributes of other students accounted for more of the variation in achievement than did school facilities, and slightly more than the attributes of the school staff. Of school-controlled variables, the teacher (as a person) was seen as most important. Attitudinal variables related to achievement included interest in school, the self-concept, and sense of control over the environment.

It seems clear that the persons in the child's life, and their attitudes and values, must be prime determiners of his own achievement motivation. This is not to say that materials, buildings, teaching methods, etc., do not affect learning; rather, it suggests that the child's background and value system affect the ways he approaches school tasks. Accordingly, the present study is an attempt to discover Ss' identifying figures and the academic achievement values attributed to each; these are related to Ss' own values, and to Ss' achievement.

In addition to academic achievement values, other non-intellective variables have been found to differentiate high and low achievers. Most studies have dealt with male Ss, or have not separated the sexes. Taylor's (1964) review, however, seems to apply equally well to boys and girls. He found that high-achievers tended to have directed anxiety rather than free-floating anxiety; they had positive self-value, acceptance of authority, positive interpersonal relationships, low dependence-independence conflict, academically-rather than socially-oriented behavior patterns, and realistic goal orientations as compared with low-achievers.

Of the studies which differentiate between the sexes, Bledsoe and Garrison (1962) found that self-concepts of girls related to achievement, and were higher than those of boys. Brookover, et al. (1962) found that self-concepts of ability were related to school achievement, and that those of girls were higher than those of boys.

Munger et al. (1964) found achieving girls higher on all California Test of Personality scales, and more popular than underachievers. McGuire et al. (1964) found that higher achieving girls tended to be sensitive and tender-minded, amenable to control by authority figures, acceptant of school and cultural demands, serious, quiet, and concerned about detailed, exact undertakings. McGuire also found factors of cognitive approach, divergent thinking, socially-oriented achievement motivation, peer stimulus value, and age-mate avoidance related to achievement of both sexes.

Farquahar (1963) found high-achieving girls high in organizational needs directed toward school activities. They conformed to established norms, were effective, orderly, goal-oriented, amenable to learning, and conformed to school role expectancies. They were also committed to long range educational goals and wanted to prepare for jobs which would be challenging. On the whole, they were more self-reliant than low-achieving girls.

In general, the literature suggests that higher achievers not only are higher in academic achievment motivation, but they are lower in nonconformity, and, while well-liked, put less energy into seeking popularity. Independence, as differentiated from nonconformity, has not been well researched. It apparently remains to be demonstrated whether independence is rewarded in the schools.

In the present study, behavior orientations toward achievement, affiliation with peers, nonconformity, and independence are researched, and data compared with those on identification, values of identifying figures, own achievement values, and two measures of achievement.

One further dimension is studied. It has been shown that boys are referred for specialized study and remedial help because of poor achievement about four times as frequently as girls. Boys get poorer marks than girls of comparable ability, yet do as well as the girls on standardized achievement tests. This suggests the probability that teachers differentially reward boys and girls, perhaps because of differences in their conforming to role norms prescribed by teachers.

There are other possible explanations, of course; e.g. "achievement" may mean different things to girls than to boys (Impellizeri, 1962) so that girls may be encouraged more than boys to compete for school marks. Again, the school milieu may be more suited to girls than to boys because of girls' earlier maturation, school emphasis on verbal behavior where girls may excel, preponderance of female teachers at the elementary level, the relatively sedentary aspect of school tasks, etc. This study does not compare boys and girls, but it does attack the question of subjective criteria of achievement (teacher grades) as compared with objective criteria (ITBS scores). The characteristics of children achieving highly on one criterion are compared with those high on the other criterion measure.

The following questions were asked in this study:

1. With who do Ss identify?
2. What achievement values are attributed by Ss to these identifying figures?
3. How are such values related to Ss' own values?
4. How are 1-3 above, related to achievement?
5. How are achievement orientation, peer affiliation, nonconformity, and independence related to 1-3 above, and to achievement?
6. If Ss are divided into highest, middle, and lowest achievers on bases of ITBS scores and also on grade point averages attained as compared to those predicted, what are the salient behavior orientation and identification and value relationships of these groups?
7. Are identification patterns, achievement values, and achievement consistent across SES and ethnic samples?
8. What are peer attitudes toward achievement as perceived by Ss?
9. What are peer attitudes toward popularity as perceived by Ss?
10. How does intellectual ability relate to achievement values?
11. How does intellectual ability relate to teacher identification of Ss?

Method

Samples

Three samples of eighth- and ninth-grade girls were available for the study of identifying figures and academic achievement values.

1. A random sample of 300 Ss was drawn from the eighth-grade population of all 13 junior high schools in a Midwestern city of 165,000 people. All Ss were of normal eighth-grade age, had no incapacitating physical or emotional defects, were of average intelligence or higher, and carried normal class loads. Parental permission to participate in the study was received. Complete data were gathered on 267 Ss.

A sub-sample of 50 Ss was randomly drawn for additional collection of data. Forty-six Ss ultimately participated in this aspect of the study.

2. An unselected available sample of 40 eighth-grade girls of Japanese descent and 42 of mixed Oriental descent were drawn from two public junior high schools in Hawaii. Partial data were obtained by the guidance counselors of each school as part of the school guidance program.

3. An available sample of 15 Negro eighth-grade and 29 Negro ninth-grade girls, and 28 white eighth-grade and 28 white ninth-grade girls was obtained from three parochial schools serving a deprived New York City area.

Instruments

Measures of intellectual ability. The various samples differed as to instruments employed for assessment of intellectual ability, since data already gathered by the schools was used.

1. Midwestern sample. The California Test of Mental Maturity (CTMM), administered in the sixth grade, was used. Total test IQ scores were employed in the study.

2. Hawaiian sample. The School and College Ability Test (SCAT) total score was used.

3. New York sample. The Otis Quick-Scoring Mental Ability Test (Otis) IQ score was used.

Samples cannot, therefore, be directly compared as to intellectual ability or in prediction studies (see below).

Measures of achievement.

1. Midwestern sample. Two measures of school achievement were used:

(a) Eighth-grade grade-point-average (GPA) for both semesters, based on A=4.00, B=3.00, C=2.00, D=1.00, and F=0.00. Academic subjects only (i.e. not art, music, or physical education) were used in computing GPA. Because of the wide variety of schools and teachers in the sample, it is believed that no systematic bias in grading was introduced. However, this sample is from a city in which the average IQ of pupils exceeds national norms, so that GPA's may not be comparable with those in other cities. (b) Iowa Test of Basic Skills (ITBS) total percentile scores were also used. This instrument was administered in January, 1968 as part of the public school testing program.

2. Hawaiian sample. Grade-point-averages were obtained on the same basis as the Midwestern sample.

3. New York sample. School marks were obtained in percentages and were not convertible to GPA's.

As with the measures of intellectual ability, samples cannot be directly compared.

Measures of identification and attributed school achievement values. All Ss responded to the School Attitude Research Instrument (SARI) which was developed especially for this project. This instrument consists of 59 Likert-type items (Appendix A) of which five each are concerned with identification of S with mother, with father, with teachers, and with peers; five each are concerned with S's estimate of mother's academic achievement values, those of father, teachers, peers, and S's own values; and five items concerning characteristics of popular peers, five with perceived teacher characterization of model pupil behavior, and four items concerning peer attitudes toward scholars.

In scoring the SARI, "Strongly Agree" was weighted at 5, "Agree" at 4, "Neutral" at 3, "Disagree" at 2, and "Strongly Disagree" at 1. Thus, for identification and achievement values, scores could range from a high of 25 (for the sum of five items) to a low of five. Other items were scored singly, as will be shown.

A pilot study, described in the grant application, showed that for 32 Ss in a suburban sample, one week test-retest reliability ranged from .999 (Spearman-Brown formula) for "Peer Identification" to .687 for "Own Values," with reliability of seven of the nine scales above .936. Validity rests on the opinions of judges who were either advanced graduate students and staff members in school psychology, or active school pupil personnel workers.

Card sort of behavior orientation. The card sort (Appendix B) was employed only with the Midwestern sample. It was developed by Ringness (1965) with bright boys from the same Midwestern city as the present major sample. Dimensions include pupil behavior orientations of academic achievement, peer affiliation, independence, and nonconformity. Twenty items for each dimension are individually sorted by Ss into a rectangular distribution of 10 cells, producing 8 cards per cell. Scores for cells range from 1 for "Most like me" to 10 for "Least like me." The previous study showed internal consistency indices of .51 for independence, .71 for peer affiliation, .85 for achievement orientation, and .93 for nonconformity. Scores may range from 36 to 184 for each dimension.

Interview. The interview (Appendix C) was individually administered by a qualified school psychologist to a sub-sample of 46 Ss from the Midwestern sample. It consists largely of items drawn from Ringness' prior studies and was designed to amplify information obtained from the SARI. Responses were not limited to specific answers, and in some instances were therefore classified in more than one category.

Collection of Data

Midwestern sample. During the fall semester, 1967-68, Ss were randomly selected and parental permissions to participate in the study were obtained. CTMM IQ scores were obtained from school records, and the SARI was administered to groups at each junior high school.

During the spring semester, 1968, the researcher individually administered the card sort and an advanced graduate student in school psychology interviewed the sub-sample. ITBS scores were obtained from the school testing program, and GPA's were calculated.

Hawaiian sample. The SARI was individually administered to Ss by guidance counselors in two junior high schools as part of the regular counseling program in the spring semester, 1968. Ss were unselected, and represent students who appeared for educational, vocational, or other forms of counseling. GPA's and SCAT scores were also obtained by the counselors.

New York sample. The SARI was administered in the spring semester, 1968, in three parochial junior high schools by the school staffs. Average marks, in percentages, were also provided by the school staffs, as were Otis IQ scores.

Results

Midwestern Sample

Table 1 shows ability and achievement data for the 267 Ss in the study. It is evident that the sample is well above average in intellectual ability, a finding which is attested to by other studies of the pupil population of this city. The sample is, however, only slightly above average in ITBS total (percentile) scores. The GPA mean of 2.51 may be considered "C+ or B-." Since other studies have shown that there is some tendency for teachers to give more A's and B's than a normal distribution curve would suggest, the 2.51 GPA mean suggests that the sample, as a whole, might be considered to be doing average work. Since ability scores are high, it is possible that "average work" may be superior to what might be considered "average" in a school system where ability levels were lower.

TABLE 1

Means and Standard Deviations for Ability and Achievement Scores of Midwestern Sample

Source	M	SD
CTMM IQ	114.29	11.84
ITBS total percentile scores	55.24	26.97
Eighth-grade grade point average	2.51	.73

As standard deviations indicate, there is the usual variation among Ss in CTMM and GPA data, but larger than usual ITBS variation. It may be remarked that there are certain cultural differences in the school populations of the 13 junior high schools studied, but such differences were purposely omitted from consideration in this study.

Table 2 shows total sample means and standard deviations for SARI scores on identification and academic achievemdnt value variables. Each score, ranging from a low of five (strongly disagree) to a high of 25 (strongly agree) is for each S a composite of scores on five SARI items. A score near 20 represents "agree," whereas a score near 15 is "neutral." All items were phrased positively (Appendix A).

TABLE 2

Means and Standard Deviations for Identification and Attributed Achievement Values of Midwestern Sample

Source	M	SD
Father identification	19.03	4.69
Father achievement values	19.21	3.78
Mother identification	20.18	4.47
Mother achievement values	19.83	3.28
Peer identification	19.76	3.16
Peer achievement values	16.02	3.24
Teacher identification	14.66	3.87
Teacher achievement values	18.83	3.00
Own achievement values	19.39	3.42

Note: Scores may range from low of 5 to high of 25.

It is not statistically feasible to compare scores among variables, since one t test assumption is violated (i.e., items are not the same in each category even though phrased similarly). However, inspection of the data allows some inferences.

It is seen that Ss identify about equally well with each parent, and that they attribute approximately equal achievement values to each.. Apparently Ss identify, but not strongly, with parents, and see them as holding academic achievement values, but not strongly so. Identification with peers (best friends) is about equal to identification with parents, but peer achievement values are seen as lower.

It is not surprising that Ss identify less well with teachers than with parents or peers. The classroom is more formal, contact on a personal level is less, and teachers lack certain reinforcers possessed by parents and peers. Teachers are seen by Ss to possess achievement values not quite as high as those of parents.

The standard deviations for all variables attest to a range of opinions among Ss, with the greatest variation occurring in father and mother identification. The latter finding may be a function of the age of these Ss, and the well-known independence-dependence conflict attributed to adolescents, as well as long-continuing attitudes toward parents.

Table 3 presents data on behavior orientations obtained from the card sort. Scores for each dimension represent the summation of scores for 20 cards, placed in cells where "1" is "most like me" and "10" is "least like me." Contrary to SARI scores, card sort scores are arranged so that lower scores represent greater agreement with the attributes.

TABLE 3

Means and Standard Deviations for Behavior Orientations of Midwestern Sample

Source	M	SD
Nonconformity	136.03	18.10
Affiliation with peers	92.41	20.10
Academic achievement	102.10	20.66
Independence	104.34	23.09

Note: Scores may range from 36 to 184. Lower scores indicate higher degrees of Ss behavior orientations.

For the group as a whole, Ss strongest behavior orientation is that of affiliation with peers. Independence and academic achievement are somewhat less strong, but pupils clearly do not see themselves as nonconforming. It should be noted that the scores are based on ipsative data, and therefore represent relative rather than absolute strength of behavior orientation. Findings seem consistent with what is already known about Ss of this age.

Table 4 presents statistically significant product-moment correlations among the variables. Signs of correlations with behavior orientation variables are reversed to make all scales conform directionally.

Most of the many correlations, although significant, are low, but there are consistent trends among the data. For example, Ss' own academic achievement values are related to identification and values of parents and teachers, and to peer values (but not to peer identification), suggesting a consistency among identifying figures' perceived achievement values, and those of Ss themselves. Although correlations cannot demonstrate cause and effect, these relationships suggest that the predictions of social learning theory may be correct; namely, that identification with certain figures may result in internalization of their achievement values.

TABLE 4

Significatn Correlations Among Ability, Achievement, Identification, Achievement Values, and Behavior Orientations of Midwestern Sample

Variable	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. CTMM IQ							.262							.444	.734
2. Father ident.		.499	.408			.219	.302	.309		-.292		.353		.209	
3. Father values			.282	.510		.255	.285	.240	.260			.268			
4. Mother ident.				.289		.298	.410	.504	.200	-.220		.352			
5. Mother values					.256		.281	.205	.290						
6. Peer ident,						.283			.200		.263				
7. Peer values							.457	.534	.316	-.263		.348			
8. Own values								.563	.322	-.317		.510		.337	.318
9. Teacher ident.									.375	-.231		.377			.195
10. Teacher values															
11. Nonconformity											-.395	-.604			
12. Affiliation												-.210	-.209		-.245
13. Aca. achiev.													-.302	.346	.256
14. Independence															
15. 8th grade GPA															.670
16. ITBS total score															

Note: When r=.195, p<.05. Signs of variables 11, 12, 13, 14, were changed because scale directions were in reverse of other variables.

A question may be raised as to whether Ss are employing a generalized response set in regard to the identification and value items. However, the differences in means and standard deviations and the correlations among these variables support the belief that Ss evaluated each item independently. Inspection of raw data confirms this belief.

Ss' own values and achievement orientation are related to GPA and ITBS scores, but actual achievement was related to identification and value variables in only two instances. The relationships may be diagrammed thusly:

Identifying figures) → Own values) → GPA)
Values of " ") → Ach. Orient.) → ITBS)

Nonconformity is negatively correlated with identification and affiliation variables as expected, and also to achievement orientation and own achievement values. Further, independence orientation is negatively correlated with achievement orientation, although neither nonconformity or independence is related to achievement as measured by GPA and ITBS scores. Thus, if the diagram above is accepted as useful, it might be added that conformity and willingness to subordinate independence may be important behavior orientations helping to influence identification, acceptance of adult values, and S's own motive to achieve in school.

One of the questions attacked in this study was the relationship of intellectual ability to teacher identification. It is seen that the correlation of these variables was not statistically significant, implying that bright, average, and dull students do not significantly differ in teacher identification. Teacher identification correlates with mother identification, father identification, father values, peer values, and own values, suggesting that those who identify well with the teacher may be associating with like-minded peers, and have values promoting a good relationship with the teacher.

Intellectual ability is, however, related to own achievement values, suggesting that more intelligent students are more motivated to do well in school. It is also related to GPA and ITBS scores, as might be expected.

In summation, low but significant correlations show relationships between identification with adults, adults' achievement values, and Ss' own achievement values and achievement orientation. The latter, in turn, are related to GPA and ITBS scores. Nonconformity and independence are negatively related to motive to achieve and to adult identification. GPA and ITBS are also related to each other and to CTMM IQ.

Prediction studies. In an attempt to view the data in a different way, the CTMM was used as a predictor of GPA and ITBS scores. Two sets of regressions were run, and predicted achievement was compared with actual achievement.

1. GPA. Correlation of the CTMM with GPA was .444. Regression produced a series of residuals which were differences between actual GPA and GPA predicted by the CTMM. These residuals were divided by the standard error of regression (.3924), and these statistics were used in grouping Ss into highest, middle, and lowest achievers in comparison to prediction. Thus, lowest achievers were those whose residuals divided by standard error of regression were -.434 or less, middle were from -.433 to +.448, and highest were +.449 or higher, as computed by the University of Wisconsin Computing Center REGAN 1 program. Three equal groups of 89 Ss each resulted. As can be seen, these groups correspond well to the concepts of over-, at-, and under- achievement, using only CTMM scores as a basis for prediction.

Table 5 shows one-way analyses of variance for these data. Examination of Table 5 shows that the IQ was successfully removed from influencing other variable scores of the various groups, since there was no significant IQ difference in the means of highest, middle, or lowest achievers. There were, of course, highly significant differences in GPA and ITBS scores, showing that these groups indeed did differ on achievement. Parcelling of Ss among groups may be said to be adequate.

Of the identification variables which distinguished among highest, middle, and lowest achievers, identification with father, mother, and teacher were statistically significant. In each instance, highest achievers stated the highest degree of identification, with middle and lowest achievers' scores decreasing in that order. Based on actual compared to predicted achievement (ruling out intellectual ability as a factor), identification with adults distinguishes achievement groups. However, values attributed to adult figures do not so distinguish. It may be hypothesized that parental achievement values do not particularly differ among these groups, but that acceptance of such values, via identification, is the important factor.

It is further seen that peer achievement values distinguish highest and middle achievers from lowest achievers. Since all Ss appear to identify with peers, lowest achievers may be therefore identifying with other lowest achievers. In this sense, "like" may band with "like"- for high achievement, Ss might do well to make friends with other high achievers.

"Own achievement values" also distinguishes among highest, middle, and lowest achievers. In effect, achievement is related to achievement values of S, his peers, and his identification with parents and teachers (who have been shown to have academic achievement values). This again bears out the social learning theory constructs on which this study was based.

TABLE 5

Means, Standard Deviations, and Analysis of Variance of Study Variables for *S*s Grouped by Actual Compared to Predicted GPA

Group	M	SD	Source	df	MS	F
CTMM IQ						
Lowest	113.4	11.6	Between Groups	2	71.0	.505
Middle	115.2	11.6	Within Groups	264	140.7	
Highest	114.3	12.4				
Father Identification						
Lowest	18.0	4.99	Between groups	2	76.4	3.544*
Middle	19.2	5.20	Within groups	264	21.5	
Highest	19.9	3.51				
Father Achievement Values						
Lowest	19.5	3.7	Between groups	2	22.5	1.938
Middle	18.6	4.1	Within groups	264	14.2	
Highest	19.6	3.5				
Mother Identification						
Lowest	19.4	4.6	Between groups	2	66.3	3.379*
Middle	20.1	4.9	Within groups	264	19.6	
Highest	21.1	3.6				
Mother Achievement Values						
Lowest	20.3	2.9	Between groups	2	22.4	2.095
Middle	19.3	3.6	Within groups	264	10.7	
Highest	19.9	3.3				
Peer Identification						
Lowest	19.6	3.5	Between groups	2	2.4	.236
Middle	19.9	3.1	Within groups	264	10.0	
Highest	19.8	2.8				
Peer Achievement Values						
Lowest	15.3	2.9	Between groups	2	38.2	3.703*
Middle	16.5	3.3	Within groups	264	10.3	
Highest	16.3	3.2				
Teacher Identification						
Lowest	13.8	3.9	Between groups	2	51.7	3.579*
Middle	14.9	3.5	Within groups	264	14.4	
Highest	15.3	4.0				
Teacher Achievement Values						
Lowest	18.9	2.6	Between groups	2	.7	.083
Middle	18.8	2.9	Within groups	264	9.0	
Highest	18.9	3.4				

TABLE 5 (continued)

Group	M	SD	Source	df	MS	F
Own Achievement Values						
Lowest	18.0	3.7	Between groups	2	138.9	12.923**
Middle	19.7	2.9	Within groups	264	10.7	
Highest	20.5	3.1				
Nonconformity Orientation[1]						
Lowest	131.0	17.2	Between groups	2	204.7	6.504*
Middle	136.5	17.8	Within groups	264	31.5	
Highest	140.6	18.3				
Peer Affiliation Orientation[1]						
Lowest	89.9	19.7	Between groups	2	410.1	.947
Middle	93.8	21.5	Within groups	264	433.0	
Highest	93.4	21.2				
Academic Achievement Orientation[1]						
Lowest	109.6	19.3	Between groups	2	4855.1	12.352**
Middle	101.8	18.1	Within groups	264	393.1	
Highest	94.9	21.9				
Independence Orientation[1]						
Lowest	103.4	14.0	Between groups	2	173.0	.323
Middle	103.6	14.8	Within groups	264	535.8	
Highest	105.9	34.5				
Eight-Grade GPA (Criterion Variable)						
Lowest	1.76	.5	Between groups	2	47.8	263.728**
Middle	2.55	.4	Within groups	264	.2	
Highest	3.23	.4				
ITBS Total Percentile Score						
Lowest	42.2	22.9	Between groups	2	13797.9	21.956**
Middle	56.6	26.8	Within groups	264	628.4	
Highest	66.9	25.3				

*p<.05

**p<.01

[1] High score means low behavior orientation (reversed scale).

Nonconformity behavior was inversely related to achievement level (a high score representing "less like me" than a low score). It is also seen that the card sort of academic achievement orientation bears out the SARI "own achievement values" data.

2. ITBS. A second prediction study was made, using the ITBS score as a basis. Correlation of the CTMM with ITBS was .734, with a standard error of regression of 18.344. ITBS scores were predicted from CTMM scores, compared with actual ITBS scores, and residuals were computed. When residuals were divided by the standard error of regression, it was possible to determine three equal groups of 89 Ss each. Lowest achievers had indices of -.491 or lower, middle achievers indices of -.490 to +.467, and highest achievers indices of +.468 or higher. Thus, these groups correspond well to the notions of "over-" "at-" and "under-achievement."

Table 6 shows one-way analyses of variance, plus means and standard deviations for these data.

It is seen, as anticipated, that grouping of Ss was valid, since groups do not differ significantly in IQ, but do differ in ITBS (and GPA scores).

Mother achievement values differentiate inversely between achievement groups. If this is not a chance finding, it is interesting that mothers of lowest achievers have higher achievement values than middle or highest achievers, especially since mother identification did not distinguish among groups.

Peer affiliation orientation also distinguished between groups, with highest achievers less given to peer affiliation and more to achievement orientation. The ipsative character of the card sort may have influenced these findings to some extent.

It is noteworthy that findings differ from Table 5, based on GPA, to Table 6, based on the ITBS. In the former, parental and teacher identification, peer and own values, nonconformity, and achievement orientation are all related to achievement level. In the ITBS, only mother achievement values, affiliation, and achievement orientation so distinguished among groups.

A number of hypotheses may be advanced. It is apparent that the ITBS does not measure achievement in the same way that GPA does. Apparently, GPA includes some teacher consideration of compliance or conformity. Teachers apparently reward Ss who follow directions, although they also take into account test and other data related to their courses. But ITBS scores may be influenced more by learning gained incidentally, or outside the classroom. Thus, what Ss achieve as determined by the ITBS may be (more than GPA) influenced by S's cultural background. It is also possible that the high correlation of CTMM and ITBS reflects a "test-taking ability." Other hypotheses may be advanced.

Whatever the reason, with the exception of the card sort variable of academic achievement motivation, GPA and ITBS scores are differentially related to the variables of this study. The two criteria are looking at achievement in different weys. GPA considers how S behaves, what he does, and in regard to rather specific course skills and content. ITBS uses a more restricted sample of data than GPA, considers what S already knows, and may involve test-taking ability. Although there is correlation between ITBS and GPA, it is clear that the two criteria of achievement are quite different and should be considered when curricular implications are inferred.

TABLE 6

Means, Standard Deviations, and Analysis of Variance of Study Variables for Ss Grouped by Actual Compared to Predicted ITBS Score

Group	M	SD	Source	df	MS	F
CTMM IQ						
Lowest	112.4	11.1	Between groups	2	237.3	1.702
Middle	114.9	13.4	Within groups	264	139.4	
Highest	115.5	10.7				
Father Identification						
Lowest	18.7	5.0	Between groups	2	21.4	.972
Middle	18.8	4.8	Wtihin groups	264	21.9	
Highest	19.6	4.3				
Father Achievement Values						
Lowest	19.2	3.8	Between groups	2	5.0	.348
Middle	19.0	3.7	Within groups	264	14.4	
Highest	19.5	3.8				
Mother Identification						
Lowest	20.2	4.2	Between groups	2	3.1	.152
Middle	20.0	4.7	Within groups	264	20.1	
Highest	20.3	4.5				
Mother Achievement Values						
Lowest	20.7	2.7	Between groups	2	50.5	4.812**
Middle	19.7	3.7	Within groups	264	10.5	
Highest	19.2	3.3				
Peer Identification						
Lowest	19.9	3.4	Between groups	2	1.5	.145
Middle	19.7	3.3	Within groups	264	10.0	
Highest	19.7	2.7				
Peer Achievement Values						
Lowest	15.8	3.1	Between groups	2	24.9	2.388
Middle	15.7	3.4	Within groups	264	10.4	
Highest	16.6	3.2				
Teacher Identification						
Lowest	14.3	3.7	Between groups	2	15.6	1.058
Middle	14.6	4.0	Within groups	264	14.8	
Highest	15.1	3.9				
Teacher Achievement Values						
Lowest	19.1	2.6	Between groups	2	4.2	.465
Middle	18.9	3.1	Within groups	264	9.0	
Highest	18.6	3.2				

TABLE 6 (Continued)

Group	M	SD	Source	df	MS	F
Own Achievement Values						
Lowest	19.0	3.1	Between groups	2	24.1	2.074
Middle	19.2	3.7	Within groups	264	11.6	
Highest	20.2	3.4				
Nonconformity Orientation[1]						
Lowest	134.7	14.6	Between groups	2	562.0	1.724
Middle	134.4	20.4	Within groups	264	326.0	
Highest	138.9	18.6				
Peer Affiliation Orientation[1]						
Lowest	89.6	18.8	Between groups	2	2134.9	5.084**
Middle	89.6	22.4	Within groups	264	419.9	
Highest	98.1	20.2				
Academic Achievement Orientation[1]						
Lowest	105.2	18.7	Between groups	2	2509.2	6.107**
Middle	105.1	18.9	Within groups	264	410.8	
Highest	95.9	22.9				
Independence Orientation[1]						
Lowest	104.7	14.4	Between groups	2	10.1	.019
Middle	104.3	13.8	Within groups	264	537.1	
Highest	104.0	34.8				
Eighth-Grade GPA						
Lowest	2.0	.6	Between groups	2	19.7	49.829**
Middle	2.5	.7	Within groups	264	.39	
Highest	3.0	.6				
ITBS Total Percentile Score (Criterion Variable)						
Lowest	32.4	19.5	Between groups	2	44743.5	113.560**
Middle	56.1	23.3	Within groups	264	394.0	
Highest	77.2	16.1				

*$p<.05$

**$p<.01$

[1] High scores means low behavior orientation (reversed scale).

Identification and value products analyses. It may be advanced that degree of identification with parents, teachers, or peers influences achievement values of S in accordance with the achievement values of the identifying figure. As was earlier indicated, this researcher found that high father identification differentiated high-achieving boys from low achievers in an achievement-oriented population. When a population including all SES groups was studied, however, this finding was not substantiated, suggesting that in the latter population, not all fathers possessed high achievement values.

In the present study, the notion is held that high father identification (for example), coupled with high father achievement values, should be related to high achievement of Ss. High identification but low achievement values, or low identification but high achievement, might be related to a lower degree of achievement. Low identification and low achievement values of the identifying figure might also be related to poor achievement.

To examine this notion, products of identification and value scores (SARI) for each S for father, mother, teacher, and peers were calculated. Ss had already been grouped as highest, middle, and lowest achievers on the basis of actual compared to predicted GPA. They were then subgrouped as to whether they fell into the highest, middle or lowest one-third in identification times value products for each identifying figure.

Table 7 shows mean GPA's and analyses of variance resulting from such grouping. As will be noticed, subgroups were of unequal size, although they did not vary greatly. Analyses of variance employed the Scheffe approximation in a fixed effects model.

The fact that column variance is statistically significant in each analysis merely reflects the grouping of Ss on the basis of highest, middle, and lowest achievement in comparison to predicted achievement, e.g., in effect, IQ was partialled out. Where row variance is significant, however, it is seen that identification times value products were related to achievement when achievement levels were lumped. Significant interaction would suggest that identification times value products operate differentially at the various achievement levels.

There are no significant interactions, indicating that the products (rows) did not operate differentially at the various achievement levels. There also is no significant within groups variance.

Of major interest is the significance of variances due to row effects, i.e., the products of identification times achievement value scores. It is seen that for father and teacher identification times values, there is a significant row effect. Thus, Ss with high father identification and high father achievement values received higher GPA's than middle FIxFV and, in turn, low FIxFV. The same is also true for the teacher variable.

TABLE 7

Means, Counts, and Analyses of Variance for Identification and Achievement Value Products of Achievement Level Groups Based on Actual vs. Predicted GPA

Father Identification x Father Achievement Values

	GPA			
Groups	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
	N=89	N=27	N=32	N=30
High FIxFV	2.622	1.820	2.573	3.397
Medium FIxFV	N=89	N=26	N=26	N=37
	2.594	1.737	2.590	3.199
Low FIxFV	2.320	1.739	2.481	3.045
		N=89	N=89	N=89
Column Means		1.763	2.546	3.228

Source	df	MS	F
Row	2	.666	3.74*
Column	2	456.180	256.42**
Interaction	4	.199	1.12
Within cells	258	.178	

Mother Identification x Mother Achievement Values

	GPA			
Groups	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
	N=89	N=28	N=26	N=35
High MIxMV	2.567	1.698	2.558	3.270
	N=89	N=28	N=36	N=25
Medium MIxMV	2.467	1.748	2.529	3.184
	N=89	N=33	N=27	N=29
Low MIxMV	2.502	1.830	2.557	3.214
		N=89	N=89	N=89
Column Means		1.763	2.546	3.228

Source	df	MS	F
Row	2	.048	.26
Column	2	47.038	255.77**
Interaction	4	.728	.40
Within cells	258	.184	

TABLE 7 (Continued)

Peer Identification x Peer Achievement Values

Groups	GPA			
	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
High PIxPV	N=89 2.659	N=23 1.783	N=33 2.662	N=33 3.267
Medium PIxPV	N=89 2.501	N=27 1.631	N=32 2.563	N=30 3.218
Low PIxPV	N=89 2.376	N=39 1.842	N=24 2.365	N=26 3.188
Column Means		N=89 1.763	N=89 2.546	N=89 3.228

Source	df	MS	F
Row	2	.304	1.71
Column	2	47.029	264.94**
Interaction	4	.372	2.10
Within cells	258	.178	

Teacher Idnetification x Teacher Achievement Values

Groups	GPA			
	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
High TIxTV	N=89 2.696	N=22 1.759	N=27 2.578	N=40 3.290
Medium TIxTV	N=89 2.499	N=32 1.862	N=35 2.609	N=22 3.252
Low TIxTV	N=89 2.342	N=35 1.674	N=27 2.433	N=27 3.115
Column Means		N=89 1.763	N=89 2.546	N=89 3.228

Source	df	MS	F
Row	2	.672	3.75*
Column	2	45.292	252.70**
Interaction	4	.037	.21
Within cells	258	.179	

*p<.05
**p<.01

The mother and peer variables, however, showed no row effects. These findings cannot be explained on the basis of these data, but suggest the complexity of the relationships among identification, achievement values attributed by Ss to identifying figures, and Ss' achievement (GPA).

Inspection of cell N's for FIxFV shows highest achievers grouped most heavily at the medium FIxFV level, and with relatively few Ss at low FIxFV. Middle achievers are more evenly grouped, and lowest achievers are found most frequently at the low FIxFV level. For MIxMV, the grouping trend is even more marked. More of the highest achievers are also highest in MIxMV, middle achievers at medium MIxMV, and lowest achievers at low MIxMV. Thus, although for the mother variable a significant row effect was not established in GPA, there clearly is a relationship in MIxMV and GPA in numbers of Ss per cell. For the peer (best friends) variable, it is seen that for highest achievers there are more Ss of high PIxPV than medium PIxPV, the latter being higher than the number of highest achievers with lowest PIxPV. For middle achievers, there are more high and medium PIxPV Ss than low PIxPV Ss. In the lowest achievement group, it is clear that there are more Ss in the low PIxPV range than in the medium or highest range. For teacher identification and achievement values, highest achievers tend to congregate in the high TIxTV cell, middle achievers in the medium TIxTV cell, and lowest achievers in the low and medium TIxTV cells. There is thus demonstrated for each variable, a relationship between highest, middle, and lowest achievement and high, medium and low identification times value products. (It should be remembered that achievement groups were based on actual compared to predicted achievement in which the CTMM IQ was the independent variable). If highest achievers may be considered "overachievers," and lowest achievers may be termed "underachievers," then over and underachievement are related to identification and achievement values of identifying figures.

Table 8 shows means, cell counts, and analyses of variance of ITBS scores attained when Ss were grouped on the basis of achievement in comparison to predicted achievement (ITBS) and as to upper, middle, and lower one-third for identification times achievement value products. It will be remembered that the notion was held that both high identification and high values were felt necessary for high achievement, but that a person high on one variable and low on the other, or medium on both might be a middle achiever.

In Table 8, column effects for ANOVA simply reflect the fact that Ss were grouped as highest, middle, or lowest achievers on the basis of ITBS score attained as compared to that predicted from CTMM. Put another way, when mental ability was statistically removed from consideration, achievement groups still were found to differ in ITBS scores. (They might as well be called "over," "at," or "underachievement" in one sense of these terms).

TABLE 8

Means, Counts, and Analyses of Variance for Identification and Achievement Value Products of Achievement Groups Based on Actual vs. Predicted ITBS Scores

Father Identification x Father Achievement Values

Group	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
High FIxFV	N=89 59.76	N=30 35.70	N=27 61.19	N=32 81.13
Medium FIxFV	N=89 55.84	N=25 31.68	N=34 58.35	N=30 73.13
Low FIxFV	N=89 50.12	N=34 30.06	N=28 48.39	N=27 77.19
Column means		N=89 32.42	N=89 56.08	N=89 77.24

Source	df	MS	F
Row	2	1268.4	3.27*
Column	2	43977.0	113.49**
Interaction	4	386.80	1.00
Within cells	258	387.48	

Mother Identification x Mother Achievement Values

Group	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
High MIxMV	N=89 55.09	N=29 32.62	N=30 53.67	N=30 78.23
Medium MIxMV	N=89 50.73	N=40 32.55	N=25 56.16	N=24 75.38
Low MIxMV	N=89 59.91	N=20 31.85	N=34 58.15	N=35 77.66
Column Means		N=89 32.42	N=89 56.08	N=89 77.24

Source	df	MS	F
Row	2	36.02	.09
Column	2	42847.00	106.73**
Interaction	4	88.95	.22
Within cells	258	401.44	

Peer Identification x Peer Achievement Values

Group	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
High PIxPV	N=89 60.27	N=27 38.93	N=28 61.18	N=34 76.47
Medium PIxPV	N=89 54.88	N=32 29.95	N=28 55.21	N=29 82.83
Low PIxPV	N=89 50.58	N=30 29.93	N=33 52.48	N=26 72.00
Column Means		N=89 32.42	N=89 56.08	N=89 77.24

TABLE 8 (Continued)

Source	df	MS	F
Row	2	1214.9	3.15*
Column	2	43577.0	112.93**
Interaction	4	548.5	1.42
Within cells	258	385.8	

Teacher Identification x Teacher Achievement Values

Group	Row Means	Lowest Ach.	Middle Ach.	Highest Ach.
	N=89	N=24	N=33	N=32
High TIxTV	61.20	35.25	63.91	77.88
	N=89	N=32	N=28	N=29
Medium TIxTV	56.91	39.44	54.36	78.66
	N=89	N=33	N=28	N=28
Low TIxTV	47.62	23.55	48.57	75.04
		N=89	N=89	N=89
Column Means		32.42	56.08	77.24

Source	df	MS	F
Row	2	2535.7	6.83**
Column	2	43528.0	117.28**
Interaction	4	663.0	1.79
Within cells	258	371.1	

*=p $<$ .05
**=p $<$ .01

Of primary interest are the findings that father identification times father values, and teacher identification times teacher values distinguish among groups as they did in the analyses where Ss were grouped by GPA. In substance, highest achievers for combined groups had higher FIxFV scores than did medium achievers, who in turn had higher scores than lowest achievers. This was also true for the lowest and medium achievers as separate groups; but although highest achievers with highest FIxFV attained highest ITBS scores, it is seen that lowest FIxFV Ss attain slightly higher ITBS scores than did medium FIxFV Ss. In regard to teacher identification times teacher values, for the combined groups high TIxTV Ss attained better than medium TIxTV Ss, and they attained better than low TIxTV Ss. In regard to middle achievers taken separately, this was also true. In the lowest achievement group, however, Ss with medium TIxTV slightly surpassed high TIxTV Ss in achievement, as was also true for highest achievers.

Similar combined group results were found for peer identification times peer (best friends) achievement values. When groups are examined separately, it is seen that highest achievers in the lowest and middle groups had high PIxPV scores had slightly higher achievement.

In substance, FIxFV, TIxTV, and PIxPV, but not MIxMV distinguish achievement scores for combined groups, but results are not as clear cut when highest, medium, and lowest achievement groups are examined separately.

Table 8 also shows counts for cell membership. When FIxFV are examined, it is seen that there are most Ss among the lowest achievers with low FIxFV scores. For middle achievers, the mode is at medium FIxFV, and for highest achievers, at high FIxFV. This also supports the notion that FIxFV is related to actual achievement.

For MIxMV, the pattern is mixed, as it is for PIxPV. In TIxTV, lowest achievers are concentrated in the medium and low TIxTV cells, but middle and high achievers tend to be found more frequently in the high TIxTV cells.

For Ss grouped as to achievement compared to predicted ITBS achievement, it can be said that FIxFV, PIxPV, and TIxTV distinguish for combined achievement groups, i.e., on the whole, there is a relationship between achievement and identification and value variables. It must be noted, though, that within achievement groups, the relationships are less consistent, although there are no significant interaction effects.

Factor Analysis of correlations of variables. Table 9 shows the rotated factor matrix extracted by the principle components method from intercorrelations among the variables. Eigen values, percentage of common variance, and cumulative porportions of total variance are also shown.

TABLE 9

Rotated Factor Matrix for Variables in Midwestern Study

Variable	Factor Loading				
	I	II	III	IV	V
CTMM IQ	-.135	-.835*	-.113	-.036	-.006
Father ident.	-.048	-.149	.426*	.057	.639*
Father values	-.139	-.074	.092	-.065	.874*
Mother ident.	-.468*	.041	.392*	.069	.317*
Mother values	-.322*	.202	-.022	-.158	.669*
Peer ident.	-.340*	-.067	-.122	-.709*	.135
Peer values	-.715*	-.140	.193	-.141	.052
Own values	-.628*	-.293*	.342*	.110	.185
Teacher ident.	-.762*	-.106	.304*	.072	.081
Teacher values	-.665*	.006	-.193	-.111	.209*
Nonconformity orient.	.056	.196	-.748*	.372*	-.052
Affiliation orient.	.211	.203	.281	-.807*	.017
Achievement orient.	-.274*	-.245*	.734*	.253*	.156
Independence orient.	.113	-.139	-.475*	.069	-.076
8th grade GPA	-.043	-.769*	.258*	.061	.031
ITBS	-.110	-.924*	.001	.075	-.004
Eigen value	4.290	2.342	1.476	1.301	1.083
% common variance	24.363	23.755	20.246	13.904	17.731
Cum. prop. total variance	.409	.632	.773	.897	1.000

Note: Signs for nonconformity, affiliation, achievement, and independence were reversed to make scales conform with the others.

The first factor extracted accounted for 24% of the common variance. Most highly loaded on this factor are teacher identification, teacher achievement values, peer achievement values, and own achievement values. Also associated, but to a lesser degree are mother identification, mother achievement values, peer identification, and achievement orientation. This factor was termed "identification and values." Apparently Ss own values are most highly associated with those of peers (best friends) and with the teacher.

A second factor termed "ability and achievement" associated the CTMM IQ, ITBS score, and GPA most strongly. This is in accordance with the usual finding that IQ and achievement are closely related. This factor accounted for another 24% of the common variance.

The third factor extracted had positive loadings for achievement orientation, father identification, mother identification, teacher identification, own achievement values, and GPA. These were associated with negative loadings for independence orientation and nonconformity. This factor, accounting for 20% of the common variance, was called "achievement via conformity." Persons high on this factor would seem to be like Gough's (1964) Ac definition in that they achieve, but in conventional rather than independent ways.

The fourth factor accounted for 14% of the common variance. High loadings were obtained for peer identification and affiliation with peers orientation. Opposite loadings were attained for nonconformity orientation and achievement orientation. The factor was named "peer affiliation."

The final factor accounted for 18% of the common variance. High loadings were obtained for father identification, father values, and mother values. Mother identification and teacher values had smaller loadings. The factor was named "parent identification and values."

In substance, data obtained in this study may be presumed to be influenced by five underlying variables or factors. These include a factor of identification and values which most strongly associated peers and teachers with Ss' own values. The mother is also associated, but to a lesser degree. A second factor was largely cognitive in nature, and associated ability with achievement. A third factor stressed achievement through conformity. The fourth and fifth factors stressed desire to affiliate with peers, and parental identification and values. By implication, it would be desirable to further analyze data according to these factors to determine more clearly the relationship of each to achievement.

Attitudinal SARI items for Ss grouped by GPA. Table 10 presents means and standard deviations for SARI attitudinal items. These items sampled pupil opinions in the areas of model pupil attributes perceived by Ss as desired by their teachers, degree of achievement-oriented effort of peers, perceived peer attitudes toward scholars, and beliefs

TABLE 10

Means and Standard Deviations for attitudinal SARI Items for Groups Based on Actual vs. Predicted GPA

SARI Items	High Ach.		Middle Ach.		Low Ach.	
	M	SD	M	SD	M	SD
2. Teachers seem to like creative students best.	3.67	.94	3.73	.90	3.46	1.06
25. Teachers seem to like those pupils who are critical thinkers best.	3.11	.86	3.20	.98	3.13	1.10
34. Teachers seem to like conforming students best.	3.44	1.01	3.30	.95	3.45	1.04
38. Teachers seem to like those students who have a nice personality the best.	2.62	.94	2.73	1.05	2.64	.97
4. Most students here work as hard as possible.	2.62	.94	2.73	1.05	2.64	.91
26. Most students here work just a little harder than enough to get by.	3.26	.92	3.28	.88	3.20	.80
12. Most students here work only hard enough to get by.	3.27	1.03	3.21	.98	3.40	1.22
29. Most students here do not care whether one is a good scholar or not.	3.22	1.11	3.26	1.02	3.34	1.02
30. Most students here think a scholar is a square.	2.85	1.18	2.62	1.19	2.72	1.14
52. Most students here admire a good scholar.	3.01	.96	3.00	.99	3.01	.91
14. To be popular, one must have looks or clothes.	2.44	1.16	2.75	1.24	2.61	1.30
45. To be popular, one must have a good "line."	3.43	1.06	3.44	1.16	3.44	1.18
51. To be popular, one must be a good student.	2.30	.87	2.35	.98	2.26	.99
55. To be popular, one must have a nice personality.	4.18	.91	4.12	.91	4.17	.88

Note: Scores for each question range from 1-5.

concerning attributes required for popularity. As with the identification and achievement value SARI items, the Likert-type scale was used, so that a score of 5 indicated "strong agreement" with the statement, 4 indicated "agreement," 3 was "neutral," 2 indicated "disagreement" and 1 indicated "strong disagreement." Analysis of variance showed no statistically significant difference for any item among groups determined on the basis of actual compared to predicted GPA.

The first area attempted to sample Ss' notions of the kinds of pupils teachers like best. Items 2, 25, 34, and 38 sampled this area. It is seen that Ss tend to agree with the statements that teachers like creative students best but are quite neutral concerning the ideas of teachers liking critical-thinking or conforming students best. It is possible that this indecision in part reflects lack of familiarity with the concepts. Interestingly, of the four items, Ss showed least agreement with the idea that teachers like pupils with nice personalities best--possibly they may feel that teachers' ideal students are persons they themselves might not care for. On the whole, Ss indicated that they were not convinced that teachers liked any of the kinds of students mentioned particularly well. It is worth exploring further to see if they are clear in their own minds as to what students teachers prefer and whether these match statements teachers theselves might make.

The second area was concerned with how hard peers work in school. Items 4, 26, and 12 are involved. It is seen that there is least agreement with the statement that peers work as hard as possible, although means for all items show essential neutrality.

Items 29, 30, and 52 were concerned with attitudes of peers toward the scholar. Again, means tend to neutrality, but there is least agreement with the idea that most peers think the scholar is "square."

The final area was concerned with perceived peer requirements for popularity. Items 14, 45, 51, and 55 sample this area. It is clear that Ss do not believe popularity is enhanced by being a good student, or by having looks or clothes. Having a good "line" may help a little, but the main determinant is having a nice personality.

In contrast to Ringness' earlier studies, poorest achieving Ss did not view any item differently than middle or highest achievers. Previous studies (of bright boys) suggested that lowest achievers felt that peers viewed scholars as "squares," whereas highest achievers did not. It was also previously found that lowest achievers felt that most peers worked only hard enough to get by, whereas highest achievers felt that most peers worked harder than enough to get by. Further, previous studies showed that Ss felt that teachers liked conforming pupils best. In effect, since Ringness' 1965 study involved approximately the same schools as the present study, differences in findings may well be the result of differences in perceptions of boys and girls.[1] Literature suggests that the sexes are treated somewhat differently at school, that the achievement areas and attitudes toward academic scholarship are different, and that boys tend to be more aggressive and present more discipline problems than girls. Thus, this study, in comparison to earlier studies, bears out these notions.

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[1] Ss in the previous study were males of WISC IQ of 118 or above.

Attitudinal SARI items for Ss grouped by ITBS scores. Table 11 shows means and standard deviations for SARI items concerned with Ss perceptions of teachers' characterizations of model pupils, student work level, perceived peer attitudes toward scholars, and attributes required for popularity for Ss grouped as higher, middle, and lowest achievers on the basis of ITBS scores.

With the exception of two items, results are essentially similar to those already discussed when Ss were grouped by achievement level in regard to GPA (Table 10). The two items which differed were shown by ANOVA to be significant at the 5% level for effects due to achievement level.

Item 2, "Teachers seem to like creative students best," is agreed with most by highest achievers, and least by lowest achievers. It may be that highest achievers feel that they are both accepted by teachers and creative. Further study of this notion is indicated.

It is also seen that highest achievers are most neutral on Item 12, "Most students here work only hard enough to get by," and lowest achievers are most in agreement with this item. This may reflect a defensive manuever on the part of the lowest achievers.

One other difference requires comment. In Table 10, where Ss were grouped on the basis of GPA, Ss were neutral, or slightly in disagreement with, Item 38, "Teachers seem to like those students who have a nice personality best." Table 11, however, shows much more agreement with this item. Why grouping according to ITBS achievement produces a different result for this item cannot be told from the data. It is true, of course, that the two methods of grouping result in some differences in the placing of Ss. That is, some Ss were placed in the highest (or other) achievement groups in both the GPA and ITBS studies, but other Ss might be in the highest group for GPA and middle group for ITBS, etc., which may account for this finding.

Hawaiian Sample

Eighty-two Ss were drawn from the eighth grade population of two Hawaiian junior high schools. Available data included the SARI, the SCAT percentile score, and eighth grade GPA. All Ss were of oriental extraction, mostly of Japanese descent.

Table 12 shows means and standard deviations for SCAT and GPA data.

TABLE 11

Means and Standard Deviations for Attitudinal SARI Items for Groups Based on Actual vs. Predicted ITBS Scores

SARI Items	High Ach. M	High Ach. SD	Middle Ach. M	Middle Ach. SD	Low Ach. M	Low Ach. SD
2. Teachers seem to like creative students best.	3.82	.94	3.61	.96	3.44	.99*
25. Teachers seem to like those pupils who are critical thinkers best.	3.16	.88	3.08	.97	3.21	1.09
34. Teachers seem to like conforming students best.	3.29	.94	3.53	.99	3.37	1.06
38. Teachers seem to like those students who have a nice personality best.	3.58	1.05	3.64	1.05	3.71	.97
4. Most students here work as hard as possible.	2.65	.92	2.53	.99	2.81	.98
26. Most students here work just a little harder than enough to get by.	3.31	.91	3.27	.86	3.16	.82
12. Most students here work only hard enough to get by.	3.06	.98	3.34	1.11	3.48	1.12*
29. Most students here do not care whether one is a good scholar or not.	3.12	1.10	3.44	1.04	3.26	.98
30. Most students here think a scholar is a square.	2.76	1.12	2.71	1.19	2.72	1.21
52. Most students here admire a good scholar.	3.04	.95	3.03	.96	2.94	.95
14. To be popular, one must have looks or clothes.	2.40	1.12	2.66	1.21	2.73	1.36
45. To be popular, one must have a good "line."	3.39	1.01	3.43	1.18	3.48	1.22
51. To be popular, one must be a good student.	2.24	.81	2.34	.94	2.34	1.08
55. To be popular, one must have a nice personality.	4.10	1.04	4.25	.76	4.12	.88

* $p < .05$

TABLE 12

Means and Standard Deviations for Ability and Achievement Scores of Hawaiian Sample

Score	M	SD
SCAT percentile score	53.88	29.83
Eighth-grade GPA	1.95	.81

It is seen that the sample is approximately average on both measures and is lower on intellectual ability and GPA than the Mid-western sample (which was 14 IQ points above the norm and whose GPA was 2.51).

Table 13 shows means and standard deviations for identification and achievement values data.

TABLE 13

Means and Standard Deviations for Identification and Attributed Achievement Values of Hawaiian Sample

Score	M	SD
Father identification	18.60	4.71
Father achievement values	20.99	4.42
Mother identification	20.05	4.06
Mother achievement values	21.51	3.51
Peer identification	19.66	2.72
Peer achievement values	17.24	3.67
Teacher identification	14.48	3.66
Teacher achievement values	19.23	3.03
Own achievement values	19.60	3.40

It is seen that Ss' mean scores are at the "Agree" level for all items except peer achievement values and teacher identification. Ss identify most with their mothers, next most with peers, then with fathers, and least with teachers. Achievement values for parents, teachers, and self are about the same, but peers' achievement values are felt to be lower.

Correlations among variables. Table 14 shows significant product moment correlations among SARI identification and values scores, GPA and the SCAT percentile.

TABLE 14

Significant Correlations Among Ability, Achievement, Identification, and Achievement Values of Hawaiian Sample

Variable	2	3	4	5	6	7	8	9	10	11
1. Father ident.	.680	.252			.289	.305		.258		
2. Father ach. val.		.235	.253		.271	.248	.225	.367		
3. Mother ident.			.545		.290	.413		.409		-.224
4. Mother ach. val.					.247	.296	.385	.457		
5. Peer ident.										
6. Peer ach. val.						.463	.250	.537	.389	.256
7. Teacher ident.							.301	.656	.419	
8. Teacher ach. val.								.250		
9. Own ach. val.									.434	
10. GPA										.392
11. SCAT percentile										

Note: When $r = .217$, $p < .05$

It is seen that own achievement value is correlated most strongly with teacher identification and with peer (best friends) achievement values. There are also significant correlations with parental achievement values and identification, and with the teachers' achievement values. Most closely related to Ss' own achievement values are the values of peers, and identification with the teacher.

This is further born out when it is seen that GPA is most clearly related to Ss' own achievement values, to peer achievement values, and to teacher identification (and, of course, the SCAT percentile).

With the exception of peer identification, which does not correlate significantly with any other variable, the various identification and value variables are essentially related, bearing out the idea advanced earlier that the paradigm, Adult identification values ----- Own values ----- Achievement, is viable.

In these data it is of interest that the mother appears more closely related to teacher identification and Ss' own achievement values than does the father. It is also of interest that the only significant negative correlation is that of mother identification and the SCAT percentile. In view of the changing social order (or class mobility) of Oriental Hawaiians, it may be that brighter Ss are more motivated to continuing education and as such may be rejecting the mother's role rather than the mother herself.

In substance, for this sample it is apparent that the values of one's best friends and degree of identification with the teacher are related to Ss' own achievement values which in turn are related to GPA. This is not to say that parents do not influence Ss' values, for it is clear that they are related in terms of the data, but it does suggest that there is a hierarchy of importance among the identifying figures and their values as related to S's own values and actual achievement.

Analyses of variance, means, and standard deviations of study variables. Table 15 shows means, standard deviations, and analysis of variance for Hawaiian Ss who were grouped as highest, middle, and lowest achievers on the basis of actual GPA compared to predicted GPA. Correlation of SCAT-GPA was .392. Regression predicted GPA's from the SCAT and these were compared with actual GPA's. The resulting residuals were divided by the standard error of regression (.7565), and these quotients were used to develop a group of 27 highest achievers, 28 middle achievers, and 27 lowest achievers. Ss whose quotients were +.500 or higher were grouped as highest achievers, those with -.500 were considered lowest achievers, and middle achievers ranged from -.499 to +.499. Since in effect the groups represent those who are one-half or more standard errors of regression above, at, or below prediction, it may be inferred that the groups represent over-, at, and under-achievement by this definition of the terms.

TABLE 15

Means, Standard Deviations, and Analyses of Variance of Study Variables for Hawaiian Ss Grouped by Actual Compared to Predicted GPA

Groups	M	SD	Source	df	MS	F
			Father Identification			
Lowest	17.89	5.34	Between groups	2	10.561	.469
Middle	19.07	4.55	Within groups	79	22.514	
Highest	18.81	4.30				
			Father Achievement Values			
Lowest	20.70	5.00	Between groups	2	8.192	.413
Middle	21.61	3.55	Within groups	79	19.830	
Highest	20.63	4.71				
			Mother Identification			
Lowest	19.19	4.88	Between groups	2	17.203	1.046
Middle	20.75	4.00	Within groups	79	16.448	
Highest	20.19	3.10				
			Mother Achievement Values			
Lowest	21.48	3.98	Between groups	2	1.434	.114
Middle	21.75	3.15	Within groups	79	12.603	
Highest	21.30	3.48				
			Peer Identification			
Lowest	20.33	2.69	Between groups	2	10.135	1.380
Middle	19.14	2.43	Within groups	79	7.344	
Highest	19.52	2.99				
			Peer Achievement Values			
Lowest	16.00	3.62	Between groups	2	37.222	2.898[1]
Middle	17.39	2.90	Within groups	79	12.844	
Highest	18.33	4.15				
			Teacher Identification			
Lowest	12.52	3.25	Between groups	2	7.727	6.536**
Middle	15.36	3.28	Within groups	79	1.182	
Highest	15.52	3.77				
			Teacher Achievement Values			
Lowest	19.26	3.01	Between groups	2	.367	.039
Middle	19.10	2.69	Within groups	79	9.416	
Highest	19.33	3.48				

TABLE 15 (Continued)

Groups	M	SD	Source	df	MS	F
			Own Achievement Values			
Lowest	18.15	3.62	Between groups	2	43.071	4.005*
Middle	20.14	3.03	Within groups	79	10.754	
Highest	20.48	3.17				
			Eighth-Grade GPA			
Lowest	1.05	.46	Between groups	2	19.348	99.155**
Middle	2.05	.84	Within groups	79	.195	
Highest	2.74	.47				
			SCAT Percentile Score			
Lowest	55.26	25.36	Between groups	2	163.310	.180
Middle	51.11	30.20	Within groups	79	908.660	
Highest	55.37	34.21				

[1] $p=.06$

*$p<.05$

**$p<.01$

Table 15 shows statistically significant one way ANOVA between group effects for teacher identification, own achievement values, and GPA. Peer achievement values attains the .06 level of significance.

In regard to teacher identification, it is seen that lowest achievers identify less well with teachers than middle or high achievers. It cannot be stated whether low identification causes low achievement, or whether the effect is vice versa, or whether there is a circular effect or some other factor determining results. It is, however, the notion of this researcher that there is a circular effect, with poor teacher identification leading to poor achievement, which in turn tends to decrease identification, and so on. This notion must be researched further, but has implications for the teacher.

Own achievement values are lower for poor achievers, as are peer (best friends) achievement values, indicating the importance of motivation to achievement.

The significant finding in regard to GPA merely shows that when ability is controlled for, via regression, the groups do indeed achieve differently.

Attitudinal SARI items for Ss grouped by GPA achievement level. Table 16 shows means and standard deviations for items characterizing Ss beliefs about teachers' characterizations of the model pupil, the degree to which peers work at their assigned tasks, perceived peer beliefs about scholars, and perceived beliefs about attributes necessary for popularity.

Analysis of variance showed that only one item, "Teachers seem to like those students who are critical thinkers best," differentiated achievement groups. This item was significant at the .06 level.

Ss tended to agree that teachers like creative students, critical thinkers, and those with a nice personality best; they were more nearly neutral concerning teacher liking for conforming pupils.

Ss tended to agree most with the idea that most pupils work only hard enough to get by, and agreed least with the idea that most pupils work as hard as possible.

Ss were essentially neutral about scholars, although lowest achieving Ss were least flattering to the scholar.

In regard to popularity, Ss agreed that a nice personaltiy is most important, that being a good student is not related to popularity, and that looks and clothes are not requisite for popularity. They were neutral about the necessity of having a "good line."

These findings are in agreement with those of the larger Midwestern sample.

TABLE 16

Means and Standard Deviations for Attitudinal SARI Items for Groups Based on Actual vs. Predicted GPA

SARI Items	High Ach.		Middle Ach.		Low Ach.	
	M	SD	M	SD	M	SD
2. Teachers seem to like creative students best.	3.67	.83	3.54	1.00	3.81	1.08
25. Teachers seem to like those pupils who are critical thinkers best.	3.85	1.03	3.61	1.13	4.26	.86[1]
34. Teachers seem to like conforming students best.	3.30	.95	3.39	.91	3.48	.85
38. Teachers seem to like those students who have a nice personality the best.	3.93	1.00	3.68	.82	3.52	1.12
4. Most students here work as hard as possible.	2.78	.97	3.18	1.16	2.70	1.10
26. Most students here work just a little harder than enough to get by.	3.37	.84	3.46	.74	3.56	1.15
12. Most students here work only hard enough to get by.	3.37	.88	3.57	1.20	3.74	1.26
29. Most students here do not care whether one is a good student or not.	3.33	.92	3.21	1.06	3.70	.87
30. Most students here think a scholar is a square.	3.00	1.33	2.57	1.26	3.33	1.41
52. Most students here admire a good scholar.	3.00	1.27	3.46	1.14	2.81	1.33
14. To be popular, one must have looks or clothes.	2.48	1.12	2.46	1.04	2.41	1.28
45. To be popular, one must have a good "line."	2.96	1.26	3.32	1.16	3.22	1.25
51. To be popular, one must be a good student.	3.11	1.25	2.93	1.27	2.85	1.38
55. To be popular, one must have a nice personality.	4.11	1.15	4.46	.74	4.15	.99

[1] $p=.06$

New York Sample

The New York sample consisted of eighth and ninth graders from three parochial schools in a deprived area. Both Negro and white Ss were involved, as earlier described. Table 17 shows average percentile marks and Otis IQ's for these Ss (taken as a whole). It is seen that Ss have attained an average school grade comparable to a 'C" or GPA close to 2.00. IQ is at the high end of the average range of intelligence. (Although not directly comparable, these Ss are not very different from the Hawaiian sample, but are lower in IQ and achievement than the Midwestern sample).

TABLE 17

Means and Standard Deviations for Ability and Achievement Scores of New York Sample

Source	M	SD
GPA (percentile)	82.80	.71
Otis IQ	108.58	9.86

Table 18 shows means and standard deviations for identification and achievement value SARI items.

TABLE 18

Means and Standard Deviations for Identification and Attributed Achievement Values of New York Sample

Source	M	SD
Father identification	18.35	5.16
Father achievement values	19.00	4.57
Mother identification	21.61	3.83
Mother achievement values	20.97	3.42
Peer identification	18.69	3.94
Peer achievement values	16.81	3.47
Teacher identification	17.27	3.95
Teacher achievement values	20.45	2.99
Own achievement values	20.72	3.03

Ss identified most with the mother, then peers (best friends), then father, and least with teachers. Achievement values of mother, teachers, and own achievement values were higher than those of the father. Peer achievement values were much lower than the others.

Significant correlations among data variables. Table 19 shows statistically significant correlations among the data.

TABLE 19

Significant Correlations Among Ability, Achievement, Identification, and Achievement Values of New York Sample

Variable	2	3	4	5	6	7	8	9	10	11
1. Father ident.	.665			.201	.294	.224		.241		
2. Father ach. val.		.234	.489		.288	.251	.280	.282		
3. Mother ident.			.480	.223	.321	.335	.202	.427		
4. Mother ach. val.					.365	.305	.381	.410		
5. Peer ident.							.219			.214
6. Peer ach. val.						.484	.208	.603		
7. Teacher ident.							.269	.447		
8. Tea. ach. val.										
9. Own ach. val.									.250	
10. %ile grade										.472
11. Otis IQ										

Note: When $r = .195$, $p < .05$

It is seen, as with data from the earlier reported samples, that school achievement, as represented by Ss' average percentile grades, is related to measures of intellectual ability and to Ss' own achievement values. Own achievement values are related most highly to peer (best friends) achievement values, and to teacher identification, mother identification, and mother values, but less strongly to father identification and father values. Peer achievement values, too, are related to teacher identification. This sample, as did other samples, supports the notion that identifying figures and their achievement values are related to Ss' own achievement values, which in turn are related to actual achievement.

In this sample, too, mother identification and mother values are related to teacher identification, and to peer values, more strongly than father identification or father values. There is support for the notion that S's relationship to her mother, and her mother's values, may influence S's choice of best friends, how S and peers identify with the teacher, the achievement values of S and peers (best friends), and how S achieves. Thus, Coleman's statements, mentioned earlier, about the influence of the family and peers, are born out. There is also support in these data for a social learning approach to the study of achievement in schools.

Means, standard deviations, and analyses of variance for the prediction study. Table 20 shows statistics for study variables when Ss are grouped as highest, middle, and lowest achievers.

TABLE 20

Means, Standard Deviations, and Analyses of Variance of Study Variables Grouped by Actual vs. Predicted Percentile Grade

Group	M	SD	Source	df	MS	F
Father Identification						
Lowest	18.03	5.51	Between groups	2	93.671	3.713*
Middle	16.88	2.23	Within groups	97	25.231	
Highest	20.02	2.31				
Father Achievement Values						
Lowest	18.89	4.71	Between groups	2	40.998	2.000
Middle	17.94	4.94	Within groups	97	20.495	
Highest	20.15	3.85				
Mother Identification						
Lowest	20.15	4.32	Between groups	2	29.927	2.080
Middle	20.76	4.25	Within groups	97	14.391	
Highest	22.64	2.52				
Mother Achievement Values						
Lowest	21.39	3.45	Between groups	2	29.330	2.590
Middle	19.91	3.70	Within groups	97	11.322	
Highest	21.64	2.88				
Peer Identification						
Lowest	19.18	4.09	Between groups	2	18.169	1.169
Middle	17.85	4.30	Within groups	97	15.536	
Highest	19.06	3.36				
Peer Achievement Values						
Lowest	16.36	4.03	Between groups	2	26.696	2.272
Middle	16.24	3.46	Within groups	97	11.753	
Highest	17.84	2.66				
Teacher Identification						
Lowest	16.94	3.89	Between groups	2	40.780	2.705
Middle	16.38	4.05	Within groups	97	15.074	
Highest	18.51	3.70				
Teacher Achievement Values						
Lowest	20.45	3.07	Between groups	2	18.997	2.181
Middle	19.71	2.88	Within groups	97	8.709	
Highest	21.21	2.90				

TABLE 20 (Continued)

Group	M	SD	Source	df	MS	F
Own Achievement Values						
Lowest	20.06	3.27	Between groups	2	48.383	5.798**
Middle	20.00	2.83	Within groups	97	8.344	
Highest	22.12	2.51				
Grade Point Average (Percentile)						
Lowest	75.73	4.35	Between groups	2	1592.749	88.357**
Middle	83.23	4.18	Within groups	97	18.026	
Highest	89.61	4.21				
Otis IQ						
Lowest	107.72	9.39	Between groups	2	75.711	.775
Middle	110.29	10.76	Within groups	97	97.639	
Highest	107.67	9.40				

*p < .05
**p < .01

The correlation between IQ and percentile grades is .472. Regression was used to predict school marks from the IQ, and actual marks were compared to predicted marks. The resulting residuals were divided by the standard error of regression (.6257) and Ss who attained a quotient of +.373 and higher were termed highest achievers. Middle achievers attained quotients of -.499 to +.372, and lowest achievers attained scores of -.500 or lower. Thirty-three Ss were placed in the highest group, 34 in the middle, and 33 in the lowest.

It is seen that achievement group mean scores were close to the "Agree" level (20.0) for identification and value scores, with the exceptions of peer achievement values and teacher identification, which were nearer the "neutral" level (15.0). In effect, Ss identified well with parents and peers, and attributed academic achievement values to parents and teacher, but not peers (defined as best friends). However, row effects attained statistical significance only for father identification and own achievement values.

It is of interest, although not readily explainable, that middle achievers were lowest of the three groups on father identification, although highest achievers identified most closely with the father. Achievement values of the father were also lowest for the middle group (although not significantly so), as were peer identification, teacher identification, and mother achievement values. The middle achievers, on the other hand, had a slightly higher mean IQ, so it is possible that a grouping artifact is operating here.

Own achievement values distinguished highest from average and lowest achievers, as was found for other samples.

Attitudinal SARI items. Table 21 shows means and standard deviations for SARI items dealing with Ss' perceptions of teachers' characterization of model pupils, peers' work habits, peer attitudes toward scholars, and characteristics of popular girls. Data were subjected to analysis of variance and only Item 2, "Teachers seem to like creative students best" shows a significant effect. For this item, middle achievers tended to agree with the statement, but other Ss did not.

It is seen that Ss tended to agree somewhat with the idea that teachers like pupils with a nice personaltiy best. Ss stated that scholars were not considered "square," that to be popular it was not necessary to have looks, or clothes, or to be a good student, but that it was important to have a nice personaltiy. These findings, too, are similar to those of other samples.

TABLE 21

Means and Standard Deviations for Attitudinal SARI Items for Groups Based on Actual vs. Predicted Percentile Grade

SARI Items	High Ach.		Middle Ach.		Low Ach.	
	M	SD	M	SD	M	SD
2. Teachers seem to like creative students best.	3.24	1.15	3.65	1.07	2.97	1.07*
25. Teachers seem to like those pupils who are critical thinkers best.	2.88	1.08	3.12	1.43	3.12	1.14
34. Teachers seem to like conforming students best.	3.00	.71	3.09	.93	3.21	.89
38. Teachers seem to like those students who have a nice personality best.	3.57	1.09	3.82	1.29	3.61	1.14
4. Most students here work as hard as possible.	3.21	1.17	2.85	1.28	3.12	1.22
26. Most students here work just a little harder than enough to get by.	3.21	.93	3.06	1.07	3.15	1.09
12. Most students here work only hard enough to get by.	2.76	1.32	3.09	1.22	2.85	1.06
29. Most students here do not care whether one is a good scholar or not.	3.30	1.26	3.29	1.17	3.52	1.35
30. Most students here think a scholar is a square.	2.33	1.16	2.62	1.26	2.06	1.06
52. Most students here admire a good scholar.	3.24	1.09	3.38	1.13	3.12	.99
14. To be popular, one must have looks or clothes.	1.70	.95	1.53	.75	1.58	.97
45. To be popular, one must have a good "line."	3.03	1.13	2.65	1.20	2.42	1.12
51. To be popular, one must be a good student.	2.24	1.30	2.21	1.09	2.39	1.30
55. To be popular, one must have a nice personality.	3.97	1.31	4.38	.92	4.18	1.13

Comparison Among Samples

Identification and values data. Table 22 shows means and standard deviations for identification and value SARI items for the various sub-samples in the study. Hawaiian data are broken down into samples of "pure" Japanese descent and of mixed Oriental descent. New York data are broken down into white and Negro samples.

Since samples were chosen on the bases of differing data, it was felt that statistical analysis would be inappropriate.

Inspection of data reveals considerable consistency across samples. It can be noted, however, that Negro Ss stated somewhat less father identification and father achievement values than did other Ss, a finding in agreement with what others have said concerning Negro familial relationships. Fathers' achievement values were highest for Hawaiians of Japanese descent, which is in line with the upward SES mobility of this group.

New York deprived girls (white and Negro) were somewhat higher than others in mother identification, perhaps again reflecting the role of the mother (compared to that of the father) in a deprived area.

Peer identification was lower for Negro girls, suggesting a lack of group feeling as compared to other groups. Peer (best friend) achievement values were lower than values of parents except for Ss of Japanese descent.

Teacher identification was lower than parent or peer identification.

Own achievement values were lowest for the Midwestern sample and highest for New York Negro Ss.

It would be easy to over-emphasize differences among groups, especially since statistical significance of these differences is not known. However, the data are in agreement with the notion of upward striving Ss of Japanese descent, and the relatively greater identification of Negro Ss with the mother. The latter also are most achievement motivated, in their own eyes. This may be a healthy, optimistic viewpoint, or, it can represent defensiveness. The data do not reveal which (if either) explanation is correct.

SARI attitudinal items. Table 23 presents means and standard deviations for the various sub-samples for items concerning Ss' perceptions of the teachers' conceptions of the model pupil, student work habits, attitudes toward scholars, and attributes of popular pupils.

TABLE 22

Means and Standard Deviations for Identification and Attributed Achievement Values for Sub-Samples

Characteristic	Sample									
	Midwestern		Hawaiian Jap.		Hawaiian Mix.		N.Y. White		N.Y. Negro	
	M	SD	M	SD	M	SD	M	SD	M	SD
Father Ident.	19.03	4.69	18.85	4.75	18.36	4.72	19.71	4.22	16.61	5.74
Father Ach. Values	19.21	3.78	21.75	4.38	20.26	4.39	19.68	3.95	18.14	5.18
Mother Ident.	20.18	4.47	20.55	3.13	19.57	4.77	21.61	3.97	21.61	3.71
Mother Ach. Values	19.83	3.28	22.05	2.82	21.00	4.03	20.55	3.54	21.50	3.22
Peer Ident.	19.76	3.16	19.45	2.86	19.86	2.61	19.86	3.54	17.21	3.98
Peer Ach. Values	16.02	3.24	13.60	3.19	15.95	3.66	16.86	3.85	16.75	2.96
Teacher Ident.	14.66	3.87	15.60	3.43	13.41	3.60	17.57	4.22	16.37	3.59
Teacher Ach. Values	18.38	3.00	19.00	3.23	19.45	2.86	20.75	2.84	20.07	3.16
Own Ach. Values	19.39	3.42	20.90	2.52	18.36	3.68	20.46	3.36	21.05	2.54

Note: Means may range from 5-25.

TABLE 23

Means and Standard Deviations for Attitudinal SARI Items for Sub-Samples

	Sample									
	Midwest		Haw. Jap		Haw. Mix.		N.Y. White		N.Y. Negro	
	M	SD	M	SD	M	SD	M	SD	M	SD
2. Teachers seem to like creative students best.	3.62	.97	3.70	.81	3.64	1.09	3.20	1.09	3.41	1.13
25. Teachers seem to like those pupils who are critical thinkers best.	3.15	.98	3.80	1.00	4.00	1.04	3.11	1.26	2.95	1.17
34. Teachers seem to like conforming students best.	3.40	1.00	3.15	.85	3.62	.87	3.13	.89	3.07	.78
38. Teachers seem to like those students who have a nice personality best.	3.64	1.01	3.78	.98	3.64	.98	3.52	1.18	3.86	1.12
4. Most students here work as hard as possible.	2.66	.96	3.05	.99	2.74	1.14	3.02	1.20	4.27	1.23
26. Most students here work just a little harder than enough to get by.	3.25	.86	3.30	.92	3.62	.87	3.09	1.00	3.20	1.03
12. Most students here work only hard enough to get by.	3.30	1.08	3.27	1.00	3.83	1.15	2.96	1.19	2.82	1.19
29. Most students here do not care whether one is a good scholar or not.	3.27	1.00	3.20	.95	3.62	.92	3.30	1.16	3.45	1.33
30. Most students here think a scholar is a square.	2.73	1.17	3.15	1.33	2.79	1.33	2.46	1.18	2.18	1.13
52. Most students here admire a good scholar.	3.01	.94	3.30	1.15	2.90	1.31	3.18	1.03	3.34	1.09
14. To be popular, one must have looks or clothes.	2.60	1.23	2.45	1.09	2.45	1.16	1.70	.98	1.47	.72
45. To be popular, one must have a good "line."	3.43	1.13	2.95	1.18	3.38	1.19	2.73	1.21	2.66	1.09
51. To be popular, one must be a good student.	2.30	.94	3.13	1.29	2.30	1.25	2.16	1.21	2.43	1.19
55. To be popular, one must have a nice personality.	4.16	.89	4.43	.89	4.07	1.09	4.21	1.19	4.14	1.16

It is seen that the Midwestern and Hawaiian samples tend to agree with Item 2, "Teachers seem to like creative students best," but that the New York samples (deprived children) are more neutral. For Item 25, "Teachers seem to like those students who are critical thinkers best," only the Hawaiian sample of Japanese descent agreed. There was general neutrality concerning Item 34, "Teachers seem to like conforming pupils best," but a tendency to agree that "Teachers like those students who have a nice personality best." Apparently, *Ss* were not very certain about the kinds of pupils teachers "like best," with the exception that having a "nice personality" was desirable. There may have been some semantic problems with the terms "conforming" and "creative." It is of interest, however, to notice the high degree of similarity among samples in response to these items.

Differences are found in Item 4, "Most pupils here work as hard as possible." Here the Negro sub-sample was in agreement with the item, whereas the other samples were neutral, or even in slight disagreement with the item. Concerning the items, "Most students here work just a little harder than enough to get by," and "Most students here work only hard enough to get by," it is seen that the Midwestern *Ss* and the Hawaiian Japanese *Ss* were essentially neutral. Hawaiian *Ss* of mixed descent and New York white *Ss*, however, show definite feelings that most students do not work very hard, whereas New York Negro *Ss* definitely feel that students are motivated. School cultural differences thus exist in student work habits. It is hopeful if indeed the most disadvantaged sample is well motivated, although it cannot be concluded that this sample is necessarily representative of deprived children in general.

For Item 29, "Most students here do not care whether one is a good scholar or not," Hawaiian *Ss* of mixed descent were most in agreement with the item. Taken in conjunction with that sample's statements concerning work habits,. and with Item 52, "Most students here admire a scholar," there is a suspician that peers in this sample do not highly prize scholarship. This may be contrasted with the more favorable attitudes of the Hawaiian Japanese sample, which is in line with family achievement values generally attributed to the Japanese. Deprived *Ss*, New York white and Negro samples, did not reject the scholar, but he was not particularly admired. In substance, *Ss* tended to neutrality concerning the scholar, which is consistent with most findings concerning the female sex role, but there was some variation in means among the samples.

All *Ss*, but particularly the New York (deprived) samples state that popularity does not require looks or clothes. They also state that it is not necessary to be a good student, but that one must have a nice personality. They are essentially neutral concerning the need to have a good "line," and it may be that this terminology presented a semantic problem.

If the data are taken in their entirety, it is surprising what similarity exists among the opinions of the various groups. Differences which occur seem to portray higher acceptance of the scholar's role by the Japanese Hawaiian sub-sample and by the New York Negro sub-sample.

Interview Data

The Midwestern sample was randomly subdivided to produce a subsample of 50 Ss to be interviewed. Complete data were obtained on 43 of these Ss, who represented 16 of the highest, 13 of the middle, and 14 of the lowest achievers classified on the basis of actual vs. predicted GPA. The interview, Appendix C, consisted of structured questions, but Ss were encouraged to expand their answers and to clarify their remarks. All interviews were conducted in private by the Research Assistant, a female advanced graduate student in school psychology. Subjects were told that they need not answer questions they did not wish to answer; it was hoped in this way to induce valid answers. Ss were also assured of anonymity.

Some Ss gave more than one answer to a question, hence N's for the various items do not always total 43. Chi-square analysis of between-group differences were found.

Table 24 shows the number of responses for categories for each interview item, together with chi-square analysis where significant between-group differences were found.

Occupational Choice. For the 43 Ss, it is seen that nearly one-half (21) wished to become teachers or nurses, and that teaching was by far the favorite occupational choice. A variety of other occupations were chosen by only one or two Ss each, most occupations requiring a college degree or special training beyond high school. Only four Ss had not at least tentatively decided upon an occupation. Most of the chosen occupations were clearly traditional to the feminine role, but it is of some interest to note that one girl wished to become a doctor, two wished to become veterinarians, one wished to be an oceanographer, one an archaeologist, and one a zoologist. Choice of occupation was not related to achievement level except for the teacher and "don't know" categories. That some choices were not realistic is shown by the fact that two lowest achievers chose to become veterinarians, and that other lowest achievers chose to become zoologists, archaeologists, social workers, and authors.

It is seen that slightly more than one-third of the Ss intended to make a lifetime career of their chosen occupations, which suggests that the scarcity of women in high level positions is related to the feminine role and values. The largest number of Ss intended to work only until marriage, and this was especially true of the lowest achievers, who seem more "marriage-oriented" than "career-oriented." Another seven Ss intended to work at such times as careers did not interfere with raising children.

Occupational choice was made most frequently for reasons of interest, and it is noteworthy that such interest was engendered most frequently by the teacher or school, and next most frequently by siblings, with parents playing a part in only three instances. Most occupational aspirations seem to be quite long-standing, and Ss are generally acquainted with their chosen fields. Since the model occupational choice is that of teaching, it is not surprising that 12 Ss found teachers as role models.

It is not surprising that few Ss have had any personal experience with activities like or somewhat like their occupational choices, but in spite of this, 14 Ss were definite in their choices and 28 indicated realistic plans for preparation for work.

Occupational choices were studied partly to discover relationships with parents and teachers, and to see whether certain occupational choices (or lack of choice) might have some bearing on school achievement. The only indication which was gained is that more of the highest achievers than others wished to become teachers, suggesting a close identification with school. Teachers were occupational role models, and school influenced choices more than did parents, but these findings did not differentiate among achievement levels.

It is seen that familial attitudes towards working women were favorable, although the qualification was added that such work should not interfere with the mother's place in the home and raising of children. Over half of the Ss mothers had worked outside the home, and mothers of half the sample encouraged Ss to prepare for a job. Fathers' attitudes toward women working and regarding preparation for a career were similar to those of the mother.

Parental identification. An attempt was made to determine whether one achievement level group identified with parents more than another, and whether Ss identified with parents more than with others. Surprising to the researcher was the finding that over half the sample stated that they had no adult identifying figure, or object of admiration. It is probable that Ss may not have been clear in their own minds what the interviewer's questions meant, for 24 Ss stated that they were like their mothers in personality, or attitudes and opinions, showing a modeling effect. Ss engaged in many activities with their mothers, and 28 Ss stated that these took place often or moderately often. Highest and lowest achieving Ss were more often with their mothers than were middle achievers, who engaged in mother-daughter activities moderately often.

Again, in regard to identification, 19 Ss said they were very close to their mothers, although this did not distinguish among achievement groups. Seventeen Ss were somewhat close, but only seven were so-so or not very close.

Twenty-three Ss stated that their mothers felt strongly about school achievement; another 8 said their mothers felt moderately strongly, and 10 said that their mother's attitude was to do the best one can. Ss agreed with their mothers' feelings about school achievement. Further, they tended to agree about their social life, and parental values in general.

When father identification items are examined, it is seen that essentially the same pattern is presented as for mother identification items. Ss generally identified with both parents, and held similar attitudes and opinions. Where Ss were not similar or did not identify with parents, differences were more frequent among lowest achievers, but not significantly so.

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It should also be noted that Ss said they identified with friends somewhat more frequently than with parents, and also stated in 18 instances that they held values most like their friends, although 22 Ss held values more like their parents.

It seems clear that there are differences among Ss in identifying figures, modeling, and acceptance of values of identifying figures, but these differences do not differentiate achievement groups. At this eighth-grade age, Ss are still close to their parents, and are very like their parents in attitudes and values, but are beginning to identify more closely with friends than with parents. Friends' values and attitudes are generally like those of Ss', and these in turn are like parents. Apparently, choice of friends does, to some extent, depend on friends' values and whether these are like those expressed in Ss' homes.

The data support the notion, stated earlier, that the cumulative effect of one's various identifying figures, and the values of these figures, relate to Ss' own values. In the interview data, it would seem that there is considerable congruity between Ss' values, those of their parents, and their friends; this should provide a reinforcing effect.

Identification with school. The school subject most liked was English, a common finding with girls. Liked most, but less frequently, are mathematics and history, with other subjects liked best by very few Ss. The subject liked best was interesting or stimulating, and the teacher was a strong factor.

History was liked second best by 10 Ss, and science and English were second best for 7 Ss each. Again, the teacher and the interesting - enjoyable nature of the class were determiners of Ss' likes (it should be noted that the teacher undoubtedly is a strong factor in making the subject interesting, but also that the S may like a teacher who handles a subject she likes - there is a circular effect).

Least liked by most Ss was mathematics, followed by science and English. The difficulty of the subject, and the teacher, were determining factors. Science and mathematics were next least liked by 17 Ss.

The data seem to demonstrate that Ss (who were girls) are most interested in the humanities, although many like science and mathematics. The teacher, as well as the content, are greatest determiners of like or dislike. Mathematics and science are least liked by the greatest number of Ss, either because they are not interested, or they find the work difficult. It is of interest that Ss tended to ignore subjects such as French, art, music, home economics, and physical education when discussing their likes or dislikes.

School is seen as important largely because it enables Ss to get into college or do well in a job. As expected, highest achievers are happy with their grades, and lowest achievers are not. Grades are important primarily because of their practical value.

As with Ringness' (1965) boys study, *Ss* stated that teachers tend to like quiet and docile pupils, and smart pupils. This finding did not occur on the SARI, where the term "conforming" was used; statements by data collectors show that the latter term confused some *Ss*, and it therefore is felt by the researcher that the interview data are more representative of *Ss*' beliefs in spite of the smaller size of the sample.

One-third of the *Ss* agreed with the teachers' conceptions of the model pupil; the rest only agreed at times, disagreed, or didn't know. About three-fourths, however, wanted to please the teacher by conforming to the teachers' norms, even though they may have disagreed with these norms. These data confirm SARI findings that a powerful element in *Ss*' lives is conformity to adult (and teacher) standards. Interestingly, more of the lowest and middle achievers than highest achievers wanted to conform. The latter may have desired more opportunities for independence in their work.

About one-third of the *Ss* were certain of the teachers' good opinions about them, but half felt that it was important that the teacher have a good opinion of them.

Attributes of favorite and unfavorite teachers are essentially traditional and need not be discussed. It is of interest, however, that the teacher's personality attributes, rather than his methods or competence are the prime determiners. It is also of interest that 14 *Ss* stated that they had no unfavorite teacher.

Slightly more than half the *Ss* were friendly with the teacher outside of class, and this was more characteristic of highest and lowest than of middle achievers. Half of the *Ss*, however, did not identify with the teacher.

Identification with peers. Friends are nice, friendly, have a nice personality, like to have fun, and possess a sense of humor. For half of the sample, friends are good students. Most peers like good students or find that being a scholar makes no difference in friendship.

Characteristics of girls popular with other girls include being friendly and having a nice personality. One-third of the sample also mentioned being well-dressed, although SARI items tended to reject this necessity. Girls that boys like are pretty, good-looking, and well dressed. They are also friendly and have nice personalities.

About one-third of the *Ss* stated that their friends work very hard in school, but almost as many stated that their friends work only hard enough to get by. The most prevalent attitude among peers in general is that of only working as much as is necessary.

Thirty-two of the *Ss* belonged to one or more peer organizations, but 11 did not. Of those who belonged, a little more than one-half held leadership positions in these organizations at some time.

Summary. Most Ss in this sample are college bound, and many desire to become teachers. Families encourage training for a job - but many make a point of the need for a career not to endanger the home or child rearing. Thus, for these Ss taken as a whole, an occupation is not so much a career as an aid in financing marriage and family.

Ss tend to identify with mothers and fathers rather equally and to accept their attitudes and opinions. Yet, Ss identify even more with peers, although they tend more to parental than to peer values. For many Ss, peers are similar in attitudes to Ss' parents, so that a rather constant, mutually reinforcing influence is exerted on Ss' values. Insofar as the interview is concerned, parent identification and values did not differentiate achievement groups as much as occurred with the SARI.

School subjects were liked because they were interesting and because of the teachers. When subjects were disliked, it was because they were hard, uninteresting, or because of the teacher. If English and history are more liked by girls, and mathematics and science by the boys, these Ss are adhering well to the feminine role.

School is, however, a place of conformity to the teachers' demands. Ss identify much less well with teachers than with peers and parents, although the SARI showed that teacher identification was related to achievement. Since peer achievement norms are mediocre or low, and since Ss do not identify as well with school as with peers, it is not surprising that Ss achieve primarily to please the teacher, for practical reasons.

Peer popularity is not enhanced by being a scholar. While scholars are liked or accepted, peer popularity is most highly related to friendliness, nice personality - and to clothes.

In most respects the interview confirms, but elaborates, the SARI. Implications of these findings will be discussed in the next chapter.

TABLE 24

Number of Categorized Responses of Subsample for Interview Questions

Responses	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High.	Tot	L-M	L-H	M-H
Area of Occupational Choice							
Hoped for Occupation							
Teacher	5	2	10	17		4.14	6.56
Nurse	2	0	2	4			
Doctor	0	1	0	1			
Veterinarian	2	0	0	2			
Oceanographer	0	1	0	1			
Archaeologist	1	0	0	1			
Social worker/Vista worker	1	1	0	2			
Zoologist	1	0	0	1			
Author	1	0	1	2			
Artist	0	1	0	1			
Dress Designer	1	0	0	1			
Airline Stewardess	1	0	1	2			
Actress	0	0	1	1			
Nun	0	1	0	1			
Dental Hygienist	0	0	1	1			
Salesgirl	1	1	0	2			
Beautician	1	1	0	2			
Secretary	1	0	0	1			
Don't Know (DK)	0	4	0	4	6.36		5.71
Duration of Occupation							
Lifetime	4	4	6	14			
Only until marriage	10	2	4	16	6.56		
Before children/After children raised	1	3	3	7			
Depends/Don't know	1	3	0	4			
No Answer	0	1	0	1			
Not easy to classify (NEC)	0	0	1	1			
Reasons for Occupational Choice							
Interest	12	9	12	33			
Money	5	1	2	8			
Travel	2	0	1	3			
Challenge	6	1	3	10			
Help people	1	1	0	2			
No answer	0	2	0	2			

TABLE 24 (Continued)

Responses	Achievement Groups Low.	Mid.	High.	Tot.	Chi-Square Analyses L-M	L-H	M-H
Source of Occupational Aspiration							
Father	0	0	1	1			
Mother	1	1	0	2			
Teacher/School	3	3	3	9			
Siblings	4	0	2	6			
Other Adults	1	1	0	2			
Books/Reading	2	0	1	3			
TV/Movies	0	0	1	1			
DK	3	3	4	10			
NEC	4	1	2	7			
No answer	0	4	0	4	6.36		5.05
How Long Aspiration Held							
0-1.9 years	4	0	4	8			4.36
2-3.9 years	7	6	2	15			
4-5.9 years	3	1	3	7			
6 or more years	2	1	4	7			
DK	0	1	1	2			
NEC/No answer	1	4	0	5			5.05
Occupational Information							
Accurate, definite	1	1	2	4			
Generally acquainted	12	7	11	30			
Fuzzy	3	0	1	4			
NEC/No answer	0	5	0	5	7.43		6.61
Occupational Role Model							
Teacher	4	2	6	12			
Mother/Father	0	0	0	0			
Other adult	6	3	3	12			
Sibling	1	1	1	3			
None	5	3	5	13			
DK/NEC	0	5	0	5	6.86		6.47
Familarity with Role Model's Work							
Quite familiar	0	0	2	2			
Somewhat familiar	6	2	5	13			
Not very familiar	5	4	3	12			
No role model	5	3	5	13			
DK/No answer	0	4	0	4	5.71		5.38
Personal Experience with Occupation-like Duties							
Some	3	2	2	7			
Very little	6	0	3	9	6.15		
None	7	6	9	22			
NEC/No answer	0	5	0	5	7.43		6.61

TABLE 24 (Continued)

Responses	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High.	Tot.	L-M	L-H	M-H
With Whom Occupational Choice Discussed							
Father	0	1	1	2			
Mother	4	2	2	8			
Both parents	3	1	2	6			
Other adult	5	2	0	7		4.38	
Teacher	2	0	1	3			
Sibling	2	0	0	2			
No one	4	4	9	17		5.87	
DK/No answer	0	4	0	4	6.48		4.97
Certainty of Occupational Choice							
Definite	3	4	7	14			
Fairly sure, would like	5	0	0	5	4.91	5.25	
Uncertain	8	5	7	20			
DK/No answer	0	4	0	4	5.71		5.05
Plans for Preparation for Occupation							
Realistic	12	6	10	28			
Vague	3	1	2	6			
Unrealistic	0	0	1	1			
Dk/No answer	1	6	1	8	6.24		5.34
Mother's Attitude Toward Women Working							
No objections	4	3	5	12			
O-K if doesn't interfere with home/children	6	4	5	15			
Good idea in general	4	1	1	6			
Disapproves	2	2	0	4			
DK	0	3	3	6	4.12		
Mother's Work History							
Has worked outside the home	13	3	11	27	9.81		8.32
Has not worked outside home	2	8	1	11	7.63		8.98
Has worked part time	0	0	1	1			
DK	1	1	1	3			
NEC	0	1	0	1			
Relevance of Present Schooling to Future Occupation							
Helps in general/Gives background	5	1	9	15			9.26
Some subjects help	6	2	3	11			
Doesn't help	5	2	1	8			
NEC	0	2	0	2			
DK/No answer	0	6	1	7	9.31		5.34

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High.	Tot.	L-M	L-H	M-H
Future Schooling Needed							
College	13	8	10	31			
Nursing school	1	0	2	3			
Beauty school	1	1	0	2			
Vocational school	0	4	1	5	5.71		
DK/No answer	0	0	1	1			
NEC	1	0	0	1			
Encouragement from Mother to Prepare for Job							
Encourages	10	5	6	21			
No encouragement	4	4	3	11			
DK	2	4	5	11			
Father's Opinion of Women Working							
Encourages it	0	0	2	2			
No objections	4	3	5	12			
O-K if doesn't interfere with home/children	6	3	2	11			
Against it	3	3	1	7			
DK	1	4	4	9			
No Answer	2	0	0	2			
Encouragement from Father to Prepare for Job							
Encourages it	6	5	7	18			
No encouragement	3	6	3	12			
DK	5	2	4	11			
No answer	2	0	0	2			
Subject/Parental Agreement on Job Preparation							
Agree with mother most	4	3	2	9			
Agree with father most	3	2	4	9			
No difference	6	7	7	20			
DK	1	1	1	3			
No answer	2	0	0	2			
Area of Parental Identification							
Object of Admiration and Imitation							
Mother	1	0	2	3			
Teacher	1	0	2	3			
Celebrity	1	2	2	5			
Other adult	5	2	2	9			
Sister	0	0	2	2			
None	9	9	6	24			

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High.	Tot.	L-M	L-H	M-H
Why Individual Admired, Imitated							
Friendly, understanding	1	1	1	3			
Attractive	3	1	3	7			
Good in her profession	2	0	2	4			
Interesting/good personality	1	0	2	3			
Intelligent	0	0	2	2			
Calm, self-assured, happy	0	0	2	2			
Courageous/active	1	1	0	2			
Runs home, family, well	2	1	0	3			
No object of admiration	9	9	6	24			
NEC	0	1	0	1			
Subject's Similarity to Mother							
Alike in personality	0	3	6	9			
Alike in attitudes/opinions	5	6	4	15			
Look alike	2	1	2	5			
Same interests	3	1	1	5			
Not similar to mother	3	2	6	11			
DK	3	1	0	4			
Kinds of Subject/Mother Activities							
Shopping	8	10	9	27			
Outdoor sports/activities	0	1	2	3			
Walks	0	0	1	1			
Movies/Plays	4	1	2	7			
Trips/Rides/Visits	4	1	4	9			
Sew/Cook together	5	2	3	10			
Personal talks	0	1	1	2			
Projects/Hobbies	1	0	0	1			
Help her with work	1	0	0	1			
None	1	0	2	3			
Frequency of Mother/Subject Activities							
Very often	6	0	5	11	6.15		5.70
Moderately often	3	10	4	17	9.81		6.31
Not very often	5	2	3	10			
Never	1	1	2	4			
DK/NEC	1	0	0	1			
Closeness to Mother							
Real close	8	6	5	19			
Somewhat close	6	6	5	17			
So-so	2	0	4	6			4.36
Not very close	0	1	0	1			

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low	Med.	High	Tot.	L-M	L-H	M-H
Mother's Attitude Toward School Achievement							
Feels very strongly about it	11	5	7	23			
Feels moderately strong	1	5	2	8	4.54		
Do the best you can	3	2	5	10			
Somewhat important	0	1	0	1			
DK	1	0	0	1			
Agreement With Mother's Attitude Toward School Achievement							
Agree (should be important)	11	8	7	26			
Agree (should do the best you can)	3	2	5	10			
Agree (but can only do so much)	0	2	0	2			
Disagree (should not be as important)	0	1	2	3			
Disagree in general	1	0	0	1			
DK	1	0	0	1			
Subject/Mother Agreement on Social Life							
Agree (parties, clubs, dates, O-K)	3	3	2	8			
Agree (too young to date but parties, clubs O-K)	10	8	9	27			
Agree (only clubs)	0	1	0	1			
Disagree (should be able to date)	0	1	2	3			
Disagree in general	1	0	1	2			
DK	2	0	0	2			
Similarity in Subject/Mother Values and Attitudes							
Similar in general	11	9	6	26			
Somewhat similar	1	1	3	5			
Not similar	4	3	3	10			
Some similar, some not	0	0	1	1			
DK	0	0	1	1			
Similarity to Father							
Similar interests	4	1	5	10			
Similar temperament, personality	4	2	3	9			
Similar in attitudes, opinions	1	5	3	9			
Similar in looks	2	2	2	6			
Not similar to father	4	2	2	8			
DK	1	2	0	3			
NEC/No answer	3	1	1	5			

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High	Tot.	L-M	L-H	M-H
Activities With Father							
Trips, Rides	2	2	4	8			
Sports	4	4	5	13			
Shopping	1	1	2	4			
Help with his office work	1	0	1	2			
Go out to dinner	0	1	2	3			
Odd jobs	0	0	1	1			
Movies/Plays	0	3	0	3			
Projects/Hobbies	1	2	0	3			
No or very few activities	6	2	3	11			
NEC/No answer	2	3	1	6			
Frequency of Subject/Father Activities							
Frequently	3	5	4	12			
Moderately often	2	0	3	6			
Infrequently/Once in a while	3	4	4	11			
No activities	6	2	1	9			
NEC/No answer	2	2	2	6			
Closeness to Father							
Real close	3	4	6	13			
Somewhat close	6	7	4	17			
So-so	3	1	3	7			
Not very	2	0	0	2			
No answer	2	1	1	4			
Father's Attitude Toward School Achievement							
Feels very strongly	7	6	6	19			
Moderately strong	1	3	2	6			
Do the best you can	4	3	5	12			
Indifferent	1	0	0	1			
DK/No answer	3	1	1	5			
Agreement with Father's Attitude Toward School Achievement							
Agree (should be important)	10	6	8	24			
Agree (should do the best you can)	3	3	5	11			
Disagree (should not be as important)	0	2	0	2			
DK/NEC	1	1	0	2			
No answer	2	1	1	4			

TABLE 24 (Continued)

	Achievement Groups				Chi-Square Analyses		
Response	Low.	Mid.	High	Tot.	L-M	L-H	M-H
Subject/Father Agreement on Social Life							
Agree (parties, clubs, dates O-K)	0	2	1	3			
Agree (too young to date but parties, clubs, O-K)	5	7	4	16			
Disagree in general	4	0	2	6			
Disagree (should be able to date)	2	1	2	5			
DK/NEC	3	2	4	9			
No answer	2	1	1	4			
Similarity of Subject/Father Values and Attitudes							
Similar in general	6	9	9	24			
Somewhat similar	1	0	0	1			
Not similar	7	3	3	13			
DK	0	0	1	1			
No answer	2	1	1	4			
Object of Greatest Identification							
Mother	3	3	1	7			
Father	0	0	2	2			
Both parents	3	4	5	12			
Friends	8	6	4	18			
NEC	0	0	1	1			
DK	2	0	1	3			
Values Most Like Subject's							
Parents	8	7	7	22			
Friends	8	3	7	18			
No difference	0	2	0	2			
DK	0	1	0	1			
Area of School and Teacher Identification							
Subject Most Liked							
Math	3	2	3	8			
History	2	1	3	6			
English	5	5	4	14			
Science	1	1	2	4			
Social Studies	0	1	1	2			
Latin	1	0	0	1			
Art	1	2	0	3			
Music	1	0	0	1			
Physical Ed.	0	1	1	2			
Home Economics	1	0	0	1			
No favorite subject	1	0	0	1			

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High	Tot.	L-M	L-H	M-H
		Why Subject Most Liked					
Teacher	3	2	6	11			
Interesting/Stimulating	11	8	6	25			
Do well/Easy	1	3	4	8			
It/s creative	1	0	0	1			
Learn new things	0	1	2	3			
Challenging	1	0	0	1			
DK	1	1	0	2			
No favorite subject	1	0	0	1			
		Subject Liked Second Best					
Science	3	3	1	7			
English	3	1	3	7			
History	3	3	4	10			
Math	2	0	0	2			
Social Studies	1	2	2	5			
French	0	1	1	2			
Art	2	1	1	4			
Physical Ed.	0	1	2	3			
Music	1	1	0	2			
None	1	0	0	1			
		Why Subject Liked					
Teacher	4	2	3	9			
Interesting/Enjoyable	6	9	6	21			
Learn a lot	2	1	1	4			
Easy	0	0	1	1			
Do well	1	0	2	3			
Learn things independently	1	0	1	2			
Creative	1	1	1	3			
Challenging	1	1	0	2			
None	1	0	0	1			
		Subject Least Liked					
Science	2	1	4	7			
English	3	1	2	6			
Math	7	4	5	16			
History	2	3	1	6			
Social Studies	1	2	0	3			
Physical Ed.	0	1	1	2			
None	1	1	1	3			
		Why Subject Least Liked					
Teacher	5	2	4	11			
Boring	2	3	2	7			
Do poorly	1	3	2	6			
Hard	1	2	4	7			
Don't understand it	5	1	2	8			
Dislike subject matter	2	2	1	5			
Waste of time	0	1	1	2			
None least liked	1	1	1	3			

TABLE 24 (Continued)

	Achievement Groups				Chi-Square Analyses		
Response	Low.	Med.	High	Tot.	L-M	L-H	M-H
Subject Next Least Liked							
English	1	1	1	3			
Science	4	5	2	11			
Social Studies	2	0	0	2			
French	1	1	0	2			
Math	3	0	3	6			
Art	0	1	0	1			
Music	0	1	1	2			
Home Economics	0	0	1	1			
Health	1	0	3	4			
Physical Education	0	3	0	3	4.12		
None	2	1	3	6			
History	1	0	0	1			
DK	1	0	0	1			
Why Subject Disliked							
Boring	4	3	2	9			
Do poorly	4	0	0	4			
Don't think it's important	1	0	0	1			
Too hard	0	3	2	5	4.12		
Dislike subject matter	0	1	2	3			
Teacher	1	4	2	7			
Don't understand it	1	1	1	3			
Don't learn anything	0	0	1	1			
None	2	1	3	6			
DK	2	0	1	3			
NEC	1	0	1	2			
Importance of Studying Hard							
Get good grades/Get into college	8	5	5	18			
Get a job/Use on Job	2	4	2	8			
Way to achieve	1	1	2	4			
Learn more		1	2	7			
Keep up		1	0	1			
Not very important		1	3	5			
NEC	1	1	0	2			
Value of School in Later Life							
Help in job, college	8	5	9	22			
Increase knowledge in general	4	1	2	7			
Not much help	2	4	1	7			
DK	2	3	2	7			
Grades Received							
A's and B's	0	3	7	10	4.12	10.43	
Mostly B's	3	6	3	12			
B's and C's	5	1	3	9			
Mostly C's	8	3	1	12		6.53	

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Med.	High	Tot.	L-M	L-H	M-H
Satisfaction with Grades							
Happy with grades	5	10	8	23	5.99		
Sometimes happy, sometimes not	1	1	2	4			
Unhappy with grades	10	2	3	15	6.56	5.13	
NEC	0	0	1	1			
Importance of Grades							
Get into college/Get a job	7	5	8	20			
Self-esteem/Respect from others	2	1	2	5			
Proof of understanding	1	3	2	6			
Learn more	1	1	1	3			
Please parents	1	0	0	1			
Somewhat important	2	1	1	4			
Not important	4	2	1	7			
Perceived Teacher Norms for Pupils							
Quietness, docility	10	9	10	29			
Smart pupils	3	4	6	13			
Good personality	2	0	1	3			
Inquisitiveness	1	0	0	1			
Willingness to learn	2	1	0	3			
Participation in class	3	2	0	5			
Funny, humor	0	0	1	1			
NEC	0	1	0	1			
DK	0	1	0	1			
Subject's Similarity to Teacher Norms							
Similar	7	6	4	17			
Sometimes similar	3	3	2	8			
Not similar	3	2	8	13		4.74	5.04
DK	3	2	0	5			
Subject's Desire to Conform to Teachers' Norms							
Wants to conform	14	11	7	32		5.00	
Doesn't want to conform	2	2	7	11			
Subject's Attitude Toward Students Teachers Like							
Liek them	12	8	7	27			
Dislike them	3	0	3	6			
Depends on personality	1	4	4	9			
DK	0	1	0	1			
Teacher Opinion of Subject							
Good	4	4	7	15			
Neutral	4	4	0	8		4.04	5.05
Some like, some don't	0	2	2	4			
Negative	2	0	1	3			
DK	6	3	4	13			

TABLE 24 (Continued)

	Achievement Groups				Chi-Square Analyses		
Response	Low.	Mid.	High	Tot.	L-M	L-H	M-H
Importance of Good Teacher Opinion							
Quite important	6	10	10	26	5.23		
Not very important	8	3	3	14			
Sometimes imp./Sometimes not	1	0	1	2			
DK	1	0	0	1			
Subject Taught by Favorite Teachers							
English	6	6	9	21			
History	3	2	4	9			
Math	2	2	4	8			
Social Studies	1	2	1	4			
Science	3	1	3	7			
French	0	1	2	3			
Music/band	1	1	0	2			
Physical ed.	1	1	2	4			
Art	0	2	0	2			
Health	1	1	0	2			
No favorite teacher	6	2	0	8		7.39	
Attributes of Favorite Teacher							
Cheerful, Friendly, Humor	2	8	5	15			
Kind, Understanding, Nice	4	4	4	12			
Academic competence	2	1	2	5			
Knows how to teach/Stimulating	4	2	3	9			
Explains things	0	0	2	2			
Not hard/Doesn't have pets	1	1	0	2			
Interested in kids	0	0	2	2			
Strict	1	0	0	1			
No favorite teacher	6	2	0	8		7.39	
Subject Taught by Unfavorite Teacher							
Math	2	2	3	7			
Science	2	0	3	5			
History	5	0	0	5		4.38	
English	2	1	0	3			
Social Studies	0	2	1	3			
Home Economics	3	0	1	4			
Physical Ed.	0	3	1	4	5.08		
Music	0	2	1	3			
No unfavorite teacher	6	3	5	14			
Attributes of Unfavorite Teacher							
Bad disposition/Not friendly	3	2	4	9			
Lacks understanding	1	1	2	4			
Lacks subject competence	1	0	1	2			
General personality	2	2	2	6			
Not interested in the pupils	2	0	0	2			
Too strict/Unfair/Hard	1	2	0	3			
Don't learn anything	1	0	1	2			
Doesn't explain things	1	1	1	3			
No unfavorite teacher	6	3	5	14			
NEC	1	3	0	4			

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High	Tot.	L-M	L-H	M-H
Closeness to Teacher							
Friendly outside of class	9	4	10	23			4.46
Not friendly outside class	7	9	4	20			4.46
Identification with Teacher							
Identify with teacher's knowledge, interests	5	1	2	8			
Identify with teacher's personality	3	4	5	12			
Do not identify with teacher	9	8	7	24			
DK	0	1	0	1			
NEC	1	0	1	2			
Area of Peer Identification							
Attributes Looked for in Friends							
Nice, friendly, good personality	7	6	4	17			
Popular	1	2	1	4			
Like to have fun/sense of humor	6	5	7	18			
Understanding/can trust them	2	1	3	6			
Active/like to do things	4	0	1	5			
Have same interests as S	2	3	0	5			
Same grades as S	0	1	0	1			
NEC	1	0	1	2			
Academic Competence of Friends							
Good students	6	12	9	27	9.15		
Average students	3	1	4	8			
Doesn't matter	1	0	1	2			
Some good/some not good	3	0	0	3			
Not good students	3	0	0	3			
Characteristics of Best-Liked Girls							
Get good grades/smart	2	1	0	3			
Friendly, nice personality	10	7	8	25			
Pretty	1	2	3	6			
Well dressed	2	3	2	7			
Popular ones	2	1	3	6			
Don't stand up for own opinions	0	1	0	1			
Conforming girls	2	0	0	2			
Like to have fun	1	2	5	8			
Those liked by boys	0	1	0	1			
Mature girls	2	0	0	2			
Not too intelligent	1	0	2	3			
DK	2	1	0	3			

TABLE 24 (Continued)

	Achievement Groups				Chi-Square Analyses		
Response	Low.	Mid.	High	Tot.	L-M	L-H	M-H
Opinion of Good Students							
Most students like	10	7	8	25			
Like as long as not too smart	1	1	1	3			
Doesn't make a difference	3	4	4	11			
Most students don't like	2	1	1	4			
Perceived Peer Attitude Toward Good Students							
Admired	4	3	6	13			
Accepted	5	8	4	17			
Considered "square"	4	1	1	6			
Depends on personality	1	1	2	4			
DK	2	0	1	3			
Girls Popular with Other Girls							
Pretty	4	2	3	9			
Friendly/good personality	12	7	7	26			
Well-dressed	6	3	5	14			
Like to have fun/humor	2	3	3	8			
Get along with boys	1	1	1	3			
Same interests	0	1	0	1			
Intelligent	0	1	1	2			
Mature	0	0	1	1			
Not too smart	0	0	2	2			
Can trust them	1	0	0	1			
DK/NEC	0	1	2	3			
Girls that Boys Like							
Popular ones	3	3	2	8			
Pretty/well dressed	7	8	5	20			
Like to have fun/humor	2	1	3	6			
Smart	0	2	2	4			
Quiet/not silly	0	1	1	2			
Girls that help them/can talk freely	1	0	1	2			
Have same interests	1	0	0	1			
Friendly/nice personality	5	6	3	14			
Wild ones	1	0	0	1			
DK/NEC	2	1	2	5			
Friends' Attitudes Toward School Achievement							
Work very hard	7	4	3	14			
Work a little more than necessary	1	4	3	8			
Work hard enough to get by	6	2	4	12			
Some work hard/some don't	2	3	3	8			
DK	0	0	1	1			

TABLE 24 (Continued)

Response	Achievement Groups				Chi-Square Analyses		
	Low.	Mid.	High	Tot.	L-M	L-H	M-H
General Peer Attitude Toward School Achievement							
Work very hard	5	2	1	8			
Work a little more than necessary	1	3	1	5			
Work hard enough to get by	7	8	12	27		5.66	
Some work hard, some don't	1	0	0	1			
DK	2	0	0	2			
Organization Membership							
Member, one organization	9	5	4	18			
Member, two or more org's.	4	4	6	14			
Member, no organizations	3	4	4	11			
Leadership Positions in Organizations							
Has held leadership positions	10	5	9	24			
No leadership positions	6	8	5	19			
Recreational Preferences							
Sports	14	6	6	26			
Reading	3	3	2	9			
TV-Movies	0	0	3	3		4.58	
Writing	1	0	0	1			
Walks	2	0	1	3			
Hobbies	0	2	3	5			
Dances, parties	0	1	0	1			
NEC	0	2	0	2			

$p<.05 = 3.84$
$p<.01 = 6.64$

Conclusions and Recommendations

The thrust of this study was to try to determine whether certain concepts from social learning theory could help explain variations in school achievement among adolescent girls. The rationale rests upon the belief that one's own achievement values affect his actual school accomplishments. His own achievement values are initially formed by identification with, and modeling after his parents. Later, the child identifies also with peers, and may accept their values; he may also identify with and model after the teacher. Thus, knowing the child's identifying figures and his beliefs about those figures' achievement values might help explain the child's own values, and thus perhaps provide opportunities to enhance his achievement motivation (if necessary) by working through the identifying figures and their achievement values. (A discussion of how this might be done will be reserved until later).

Two major findings resulted from this study:

1. It has been established that the social learning model proposed above does indeed have application when trying to analyze the actual compared to predicted school achievement of Ss. In essence, the paradigm is as follows;

   Identifying figures) → S's own) → Achievement above,
   Values of identifying fig.) ach. values) at, or below pred.

2. Relationships of identifying figures, values, and achievement differ when achievement is measured by GPA as opposed to standardized tests of achievement.

A number of questions were asked in this study. Answers to these questions will first be discussed, and later, attention will be given to implications of the findings.

Question 1. With whom do Ss identify?

The various samples do not differ materially in their identifying figures, judging by their responses to the SARI. Ss identify about equally well at a moderate level ("Agree" level) with mother, father, and peers (best friends), but Ss identify less well with teachers ("neutral" level). These findings are not surprising, since schools are relatively impersonal in contacts with Ss compared to parents and friends. Further, the school lacks certain reinforcers possessed by peers and parents, Ss may not be in certain classes voluntarily, and finally, contact with any given teacher is likely to be less long-standing than with parents and peers.

Question 2. What achievement values are attributed by Ss to those identifying figures?

Ss' SARI responses indicate that parents have moderately high academic achievement values ("Agree" level). Teachers' achievement values are viewed as not quite as high as those of parents, although this difference is small. However, peer achievement values are considerably lower ("Neutral" level). There are, of course, variations among individual responses to SARI items, and it should be considered that peers of some Ss may hold high achievement values, and that some parents' achievement values are not stated by S to be high. For the Ss taken as a whole, there is seen to be some conflict between values of adults (parents, teachers) and those of peers (best friends). How such conflicts are resolved may be answered by question 3.

Question 3. How are such values related to Ss' own values?

Ss state that their own achievement values are moderately high ("Agree" level). This suggests that for Ss as a total group, the influence of the adults in their lives surpasses that of friends insofar as achievement values are concerned. This is not surprising, since influence of parents is likely to have been more long-standing, and to embody deeper relationships than that of peers. Ss at this age are becoming more peer-oriented, but family influence is still strong.

Question 4. How are 1-3 above related to achievement?

To answer this question it is necessary to consider Table 4, which deals with intercorrelations of variables for the Midwestern sample. While no cause and effect inferences can be made, relationship can be fruitfully examined.

It was seen that achievement measured by GPA is most closely related to achievement measured by ITBS scores and to the CTMM IQ. However, statistically significant correlations were also obtained with own achievement values, academic achievement orientation measured by the card sort, and with father identification. Thus, Ss' own achievement values have an important relationship to GPA.

When the ITBS is examined, the CTMM IQ is found to be closely related to achievement - even more strongly than in the case of the GPA. It may be hypothesized that both the CTMM and ITBS require certain school backgrounds and test-taking abilities. ITBS achievement is also related to own values, teacher identification, academic achievement orientation, and negatively to peer affiliation orientation. The findings concerning achievement orientation and peer affiliation refer to the card sort, which is ipsative. Thus, Ss are not rejecting peers, but achievers are choosing achievement over affiliation, and vice versa. This finding is in agreement with literature reviewed earlier, which suggests that high achievers are less peer oriented than low achievers.

Identification with father correlates significantly with father values, mother identification, own values, and teacher identification. It also correlates with peer values, suggesting that Ss may have as best friends persons who tend to be like themselves (achievers, nonachievers), but this relationship is not strong. Father identification is negatively related to nonconformity, positively related to achievement orientation, and to GPA.

Mother identification follows a pattern similar to that of father identification, except that it is not correlated with GPA.

Peer achievement values are related to parental identification and values, and to peer values. Peer identification relates to own values, and to teacher identification and values.

Ss' own values are related to parental identification and values, peer identification (but not values), teacher identification and values, negatively to nonconformity, positively to achievement orientation, and to GPA and ITBS scores.

Thus, for GPA, conformity to adult values, identification with adults, and the apparent association with like-minded peers are associated with Ss' own values and these, in turn, are associated with GPA - but not ITBS. It may be that higher achieving Ss in GPA are more conforming and their work habits more acceptable to teachers than those of low achievers. But it should be noted that the CTMM is more a determiner of the ITBS than any other variable. Achievement via GPA seems to demand other behaviors than does achievement via ITBS. In both instances, however, S's own motivation to achieve bears an important relationship to actual achievement.

Question 5. How are achievement orientation, peer affiliation, nonconformity, and independence related to 1-3 above, and to achievement?

This question has been partially answered previously. It should be noted that measurement of these dimensions was made with the card sort, which is ipsative. Responses, then, represent a ranking of Ss' behavior orientations rather than their absolute values. Thus, for example, the fact that Ss might choose achievement orientation over peer affiliation does not mean that they do not desire to affiliate with peers, but rather that their motive to achieve is stronger than their desire to affiliate. The card sort was used only on the Midwestern sample. Data appears in Tables 3 and 4.

It is seen that Ss' strongest behavior orientation is for affiliation with peers. Next strongest, and approximately equal, are academic achievement and independence. Ss are (by far) least oriented toward nonconformity. These findings correspond well to what is already known about adolescents; namely, the intense desire to belong or to be accepted by peers.

Intercorrelations of variables show that nonconformity is negatively related to achievement and affiliation orientation. Peer affiliation is negatively related also to achievement and independence orientations. However, achievement orientation is positively related to both GPA and ITBS scores. Thus, achieving Ss are achievement oriented, are not nonconforming, not peer affiliation oriented, and not independent insofar as correlations are concerned. This finding, too, is in accord with findings of others reviewed earlier.

Question 6. If Ss are divided into highest, middle, and lowest achievers on the bases of attained as compared to predicted GPA and ITBS scores, what are the salient behavior orientations, identification, and value relationships of these groups?

In the Midwestern sample, ANOVAs showed that for GPA, achievement groups differed significantly in father identification, with highest, middle, and lowest achievers showing highest, middle and lowest father identification in that order. Similar results were obtained for mother identification. Father and mother values did not differ among groups, so that it may be assumed that identification with parents is more influential in determining achievement than values of parents. Peer achievement values also distinguished between groups, with lowest achievers having lower peer achievement values than middle and highest achievers.

Teacher identification, but not teacher values, distinguished between groups, following a pattern similar to that of father and mother identification.

Own achievement values, achievement orientation, and nonconformity orientation distinguished groups, with highest achievers more achievement oriented and less nonconforming than middle achievers and middle achievers more achievement oriented and less nonconforming than lowest achievers.

For the Hawaiian sample, own achievement values and teacher identification distinguished among groups, and peer values distinguished at the .06 level. (The card sort was not used with those Ss).

For the New York sample, father identification and own achievement values distinguished between achievement groups.

There is obviously some, but not complete, consistency across samples. The largest sample, Midwestern Ss, clearly showed the importance of parental identification, and the New York sample echoed the importance of father identification. Peer (best friends) values were important to Ss in both the Midwestern and Hawaiian samples. In all samples, Ss' own achievement values distinguished between achievement groups. Only in the Hawaiian sample did teacher identification differentiate groups.

Allowing for cultural differences, it may be inferred that parental identification, particularly with the father, and the values of Ss' best friends are related to achievement (GPA) over, at, and under prediction. Ss' own motivation, of course, is overall the best differentiator of achievement levels.

The Midwestern sample was divided into achievement groups on the basis of ITBS scores also. Here results were confusing. Contrary to expectations, lowest achievers identified more with their mothers than did middle achievers, and middle achievers more than highest achievers. This finding is not readily explainable, although various hypotheses may be entertained. In accordance with expectations, highest achievers were less peer oriented and more achievement oriented (card sort) than middle achievers.

In substance, the influence of peers and parents, and Ss' own motivations is clear. The influence of the school is noted only in the Hawaiian sample. Achievers conform, and tend to identify with parents, and have best friends with higher achievement values.

Question 7. Are achievement values, identification patterns, and achievement consistent across ethnic samples?

Table 22 is the referent for this question. It is seen that the Midwestern and New York white samples are highest in father identification, and that New York Negroes are the lowest. Interestingly, father's achievement values are highest for the Hawaiian Japanese sample, and for the Hawaiian mixed sample. Mother identification is highest for the New York samples, and mother's achievement values for the Hawaiian samples. Peer identification is lowest for the New York Negro sample. Peer achievement values are highest for Hawaiian Japanese, but are lower than parental achievement values.

Teacher identification is lower for all samples than parental or peer identification; it is highest for the New York samples. Since the New York samples were from parochial, rather than public schools, there may be a selective factor in this sample. Teacher achievement values were also highest for these samples.

Ss' own achievement values approximate those of parents and teachers and are higher than those of peers. The New York samples were higher than all others except the Hawaiian Japanese.

Although small differences were found among samples, there is considerable consistency from group to group for each variable. Where differences are seen, they are in expected directions, i.e., the strong achievement values of the Hawaiian Japanese, the lower father identification of the Negro sample. Taking note that New York Ss were of "deprived" areas, in parochial schools, it is interesting that these Ss had higher teacher identification than other groups; their teachers' achievement values are higher and their own values are higher. These schools may be working more closely with their children; the data, however, did not lend themselves to a test of such an hypothesis.

Question 8. What are peer attitudes toward achievement as perceived by Ss?

Table 23 is a referent for this question. Items 4, 26, 12, 29, 30, and 52 are most appropriate. It is seen that only the Negro sample agrees that most students work as hard as possible; other samples are essentially neutral to that item. There is general neutrality to the idea that most students work just a little harder than enough to get by, or only hard enough to get by, excepting, again, the Negro sample which is less accepting of the latter statement than are other samples.

In general, all samples slightly agree that being a scholar is of little concern to peers. They tend to reject the idea that a scholar is a "square." Ss are neutral to the idea that a scholar is admired, except that the Negro sample is more favorable to the idea than are other samples.

Taken in conjunction with relatively low peer achievement values reported previously, credence is lent to the idea that insofar as opinions of peers are concerned, Ss for the most part think scholarship is not important, nor are peers' achievement values high. A scholar is not disdained by peers, but neither does he gain stature among peers for this attribute alone. If Ss' own achievement values are high, it appears that the parents, one's own close friends (as opposed to peers at large), and the teacher are determining influences.

Question 9. What are peer attitudes toward popularity as perceived by Ss?

Again, Table 23, Items 14, 45, 51, and 55 present relevant data. Ss either slightly or clearly agree that looks and clothes are not necessary for popularity. There is a difference of opinion concerning the need for a good "line," but samples are rather neutral. It is suspected that Ss may not have been familiar with the term. It is generally agreed that being a good student is not necessary for popularity. What *is* important is having a nice personality.

When the Midwestern sample was grouped by GPA achievement compared to predicted achievement, no statistically significant differences were found between groups for any SARI items. When grouped by the ITBS scores, it was found that middle and lowest achievers more than highest achievers tended to agree that most students work only hard enough to get by. Whether this is the result of feedback from their particular friends, or a rationalization for their own efforts (or lack of them) cannot be told from the data.

Question 10. How does intellectual ability relate to achievement values?

The correlational studies provide answers to this question. Table 4 shows a small but significant relationship between own achievement values and IQ, indicating that, as might be expected, brighter students may achieve more satisfaction in school and also realistically appreciate their own abilities, and hence are slightly more motivated.

Question 11. How does intellectual ability relate to teacher identification?

In this study the notion was entertained that perhaps brighter Ss, because they might do better in school, would identify more closely with teachers than middle and lowest achievers. Correlational studies of the various samples fail to substantiate this notion.

Summary

It seems clear that Ss in this study are subjected to differing needs for identification, and have conflicting models. Most Ss identified with parents, stated that parents wanted them to do well in school, and most Ss stated that they themselves wanted to do well in school. On the other hand, there was a desire to affiliate with peers, and peers generally were felt to have lower achievement values than parents. At this point in time, therefore, Ss' achievement motivation is more likely to be due to parental influence than peer influence.

Some evidence was presented that *Ss*' close friends may have held achievement values like those of *S*, but although significant statistically, this correlation was low.

There is evidence that pupils do not identify with teachers as much as with parents and peers; however, the data also show that *Ss*' degree of identification with teachers is related to achievement.

It was shown in various data that higher achieving *Ss* were motivated to achieve, i.e., motivation is obviously a factor in school achievement. *Ss* also rejected the notion of nonconformity.

Achievement via GPA, however, is not the same as achievement via ITBS scores. For GPA, the teacher may be taking note of *S*'s compliance with direction, his apparent effort, and other behavior attributes rather than knowledge of subject matter and skills alone. It is also true that the motivated, compliant *S* tends to learn better than those who are not. In GPA achievement, identification with adults, acceptance of adult values, and conformity (rather than independence, critical thinking, creativity) bear most fruit.

For the ITBS, however, achievement is governed by *S*'s motivation to some extent, but is even more closely related to the IQ. The social learning model fails to hold up here as well as it does with GPA. A number of reasons may be advanced, but at this point they are only hypotheses: It may be that the CTMM and ITBS are essentially sampling the same things, which may be culturally determined in part. It may also be true that the CTMM and ITBS require similar experiences and test-taking ability.

The model proposed, i.e., identifying figure, achievement values of identifying figure, *S*'s own achievement values, and resultant achievement, works well when achievement is measured by GPA. There is less consistency in findings when achievement is measured by ITBS. This suggests very clearly that when achievement is measured, and when attempts to account for such achievement are made, the criterion measure must be carefully studied. In this study, the correlation between GPA and ITBS was only .670. It is obvious that many *Ss* are not doing equally well on both criteria.

Recommendations

A number of recommendations may be made. The immediate question is the one referred to above, that is, do students do as well on GPA as the CTMM would predict? Do they do as well on the ITBS as on GPA? It is recommended that schools examine both GPA and standardized test scores to gain a fuller knowledge of the child's achievement level than would be gained by either measure alone. When a child fails to live up to achievement expectations on one or both criteria, study of the child should be made.

A second recommendation is the careful examination by the teacher of the ways his marks are determined. Is he grading on compliance, effort, and conformity, or on knowledge and skills, or both? Whatever the criteria for school marks, it would seem that pupils should be clearly aware of their bases. Some conforming pupils may not learn well and some nonconformers may learn well. How Ss act will be partly determined by the marking criteria.

A third recommendation relates to the school's definition of achievement. It seems clear that Ss do not believe that teachers like creative pupils or critical thinking pupils best. Neither does independence relate to achievement. If the philosophy of the school is to develop the independent, creative, thinking pupil, these values must "come through" to the pupil and be rewarded.

A fourth recommendation relates to the teacher as identifying figure. Although it may be more difficult for teachers to become identifying figures than for parents or peers, the effort should be made. Thus, it is necessary for the teacher to identify with the pupils, to show friendliness and acceptance of them, and to be a model of what he is trying to promote. The use of positive reinforcement of many kinds, the reduction of threat and authoritarian teaching, de-emphasis of grades as stimuli to pupil effort, reward of independence and creativity, and morale building in general may be helpful in cases where needed.

Fifth, the peer values for scholarship are fairly low. Efforts should be made to up-grade scholarship in pupils' eyes by such means as showing the advantages of doing well in school, more awards for scholarship (oddly enough, in the Midwestern sample, perceived teacher values were a bit lower than those of parents or Ss themselves), provision of free time to work on own projects when work is well done, and in other ways. The other side of the coin is that of seeing that work is given on a level that Ss can negotiate. If this is not done, defensive rationalizations by pupils are employed to disperse their frustrations due to failure. If everyone can achieve, achievement may be more accepted as a goal.

Sixth, when Ss are doing less well than expected, one can consult more with parents. It may be that parents are too lax, show too little interest in the child's achievement, or in other ways fail to stimulate the child to do his best (but not to apply pressures for grades). The father, in particular, seems related to the school values, hence to the achievement of the child. (One exception to this is in the deprived sample, where the culture is more likely to be matriarchal). Further, the child may not identify well with one or both parents. In this event, parental and/or child counseling may be in order.

Finally, since immediate peers exert influence on the child's values, group counseling of certain peer constellations may be useful.

In substance, this study proposed a social learning theory model of identification and imitation which might be applied to the study of school achievement. This model was shown to be particularly useful where achievement was measured by GPA, and somewhat less useful when standardized tests were the criterion. It is suggested that this model provides for better understanding of why pupils achieve well or not in relation to their abilities. Examination of Ss' patterns of peers and relationships to parents and teachers is thought to be fruitful.

Thus, achievement is attacked on two fronts:

(a) the positive, rather than coercive, use of identification and modeling of the teacher, and

(b) working with the child's social environment - family, friends, total peer group - rather than simply with the child himself.

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APPENDIX A

SCHOOL ATTITUDE RESEARCH INSTRUMENT

Your name________________________________ The date______________

Your school______________________________ Your grade______________

This is an attempt to learn more about how girls like you feel about certain things, mostly related to school. It is a serious research study, which may help us eventually to improve our school practices. We ask you to respond to the items as honestly as you can, and without trying to study them too carefully. The results will be kept entirely confidential by the researchers. We only need your name because you will be taking another test and we need to compare the results.

For the following items, please draw a circle around the SA in front of the item if you are strongly agreed with what the item says. Draw a circle around A if you agree, but not strongly. Circle N if you are neutral; D if you disagree, but not strongly; and SD if you strongly disagree.

Thank you for helping us with this research.

SA A N D SD 1. My mother values education highly.

SA A N D SD 2. Teachers seem to like creative students best.

SA A N D SD 3. I value my close friends' advice.

SA A N D SD 4. Most students here work as hard as possible.

SA A N D SD 5. My close friends study hard.

SA A N D SD 6. I admire my father.

SA A N D SD 7. I feel close to my father.

SA A N D SD 8. I study hard.

SA A N D SD 9. I appreciate the values of school.

SA A N D SD 10. My mother insists upon regular study habits.

SA A N D SD 11. I admire my close friends.

SA A N D SD 12. Most students here work only hard enough to get by.

SA A N D SD 13. My teacher(s) and I are much alike in our thinking.

SA A N D SD 14. To be popular, one must have looks or clothes.

SA A N D SD 15. My teachers expcet me to do well in school.

SA A N D SD 16. My close friends are aware of the values of school.

APPENDIX A (Continued)

SA A N D SD 17. I have many of the same attitudes as my close friends.

SA A N D SD 18. My father fosters working hard in school.

SA A N D SD 19. My mother tries to get me to want to study.

SA A N D SD 20. My close friends like to study.

SA A N D SD 21. I value education highly.

SA A N D SD 22. I wish to be like my father in many ways.

SA A N D SD 23. My father and I are much alike in our thinking.

SA A N D SD 24. My teacher(s) are firm believers in education for girls.

SA A N D SD 25. Teachers seem to like those pupils who are critical thinkers best.

SA A N D SD 26. Most students here work just a little harder than enough to get by.

SA A N D SD 27. I have many of the same attitudes as my teachers.

SA A N D SD 28. My close friends work hard in school.

SA A N D SD 29. Most students here do not care whether one is a good scholar or not.

SA A N D SD 30. Most students think a scholar is a "square".

SA A N D SD 31. I feel close to my mother.

SA A N D SD 32. I like to be with my teachers.

SA A N D SD 33. My close friends and I are much alike in our thinking.

SA A N D SD 34. Teachers seem to like conforming students best.

SA A N D SD 35. My mother encourages me to study hard.

SA A N D SD 36. I like to be with my father.

SA A N D SD 37. My father encourages me to study hard.

SA A N D SD 38. Teachers seem to like those students who have a nice personality best.

SA A N D SD 39. I admire my teacher(s).

SA A N D SD 40. I value my mother's advice.

APPENDIX A (Continued)

SA A N D SD 41. I have many of the same attitudes as my mother.

SA A N D SD 42. My teachers try to get me to want to study.

SA A N D SD 43. I believe that my close friends understand me.

SA A N D SD 44. My father tries to show me the values of school.

SA A N D SD 45. To be popular, one must have a good "line."

SA A N D SD 46. My teacher(s) try to show me the values of school.

SA A N D SD 47. My mother tries to show me the values of school.

SA A N D SD 48. I am a firm believer in education for girls.

SA A N D SD 49. I expect to do well in school.

SA A N D SD 50. I believe that my teacher(s) understand me.

SA A N D SD 51. To be popular, one must be a good student.

SA A N D SD 52. Most students here admire a good scholar.

SA A N D SD 53. My father insists upon regular study habits.

SA A N D SD 54. My teacher(s) encourages me to study hard.

SA A N D SD 55. To be popular, one must have a nice personality.

SA A N D SD 56. My father values education highly.

SA A N D SD 57. My close friends admire a good student.

SA A N D SD 58. I wish to be like my mother in many ways.

SA A N D SD 59. I admire my mother.

APPENDIX B

Card-Sort Items

Nonconformity

I frequently run counter (against) to the crowd.

I care relatively little about my reputation.

I do not particularly like conventional people.
(people who don't like to be too different)

I want to ignore advice.

I am a non-conformist. (Conformist means to go along with the crowd, therefore, a non-conformist is independent - thinks for himself)

I like to do things which shock people.

I often state extreme ideas just to tease others.

I sympathize with non-conformists.

I like to be considered "different" by others.

I like to wear unusual hair styles.

My values are somewhat different from those of others.

People who interfere with what I am doing bother me.

I am critical when considering ideas of others.

Some of my interests and attitudes may seem a little odd.

I like to know strange or "different" people.

I take issue with (challenge)many rules or regulations.

I tend to resent suggestions about my dress or manners.

Most people act too much like a herd of sheep, I think.

I do things which others are afraid to do because of public opinion.

I am something of a rebel.

APPENDIX B (Continued)

Independence

I prefer to trust my own judgement, rather than that of most others.

I admire independent people.

I am able to withstand criticism.

I stand up for what I think even if this makes me unpopular.

I like to evaluate my work by my own standards.

I rarely need suggestions of how to spend my time.

What one does is important, as well as why he does it.

I believe that most poeple conform too much to group ideas.
(go along)

I tend to make most of my own decisions.

If I feel that I am right, I may be a dissenter (disagree).

I like to form my own opinions.

I do not depend upon approval of others for satisfaction.

I have many interests which I follow "on my own."

I like to proceed independently.

Others seem more dependent than I.

I like to be free to work out my own projects.

I think I am independent in most things.

My ideas are better for me than are those of others.

I hate to be told how to do a job.

I do not like being told what to think.

Achievement Motive

I am interested in other people's ideas.

I want very much to succeed in school.

One's school work is more important than his social life.

I like to study.

There are few subjects in school that I really dislike.

My school marks usually please me.

I hope to go on to college.

I like to learn new things.

I would like to be respected as a scholar.

I have interest in several school subject areas.

I care more about my actual school success than what others think of me.

I am not content with average school marks.

My teachers think well of me.

I try to do my best in my studies.

My friends are usually successful students.

I sometimes study more than the teachers demand of me.

I have won awards or recognition for my academic success.

I blame myself if my marks are not up to my standards.

I study hard even on subjects which bore me.

I have passed up recreation in order to do necessary studying.

Affiliation motive

I enjoy myself most when I am with other people.

I care a great deal what other people think of me.

I have many friends.

Clubs, teams, and other organizations are important in my life.

I like to attend parties, dances, and get-togethers.

I have one or more intimate (very close) companions.

I spend very little time by myself.

Most people are friendly to me.

I usually keep my friends for a long time.

I like to meet new people.

APPENDIX B (Continued)

I feel "at home" with most people.

I try to help others have a good time.

I am happiest when other people are around.

I like to go along with the ideas of the typical student.

I do not do many things that others would not do.

I use the language that my crowd uses.

My manners are like those of my best friends.

I want to be as my friends would like me to be.

-I depend very little upon others for ideas.

-I may wear clothes which others consider inappropriate.

APPENDIX C

Interview Items

Area of Occupational Ambitions and Preparation

1. Do you intend to hold a job at least for a time when you have finished your education? If so, what would you like to work at?

2. Would you work at this job all of your life, only until marriage, after children are raised, or when?

3. What would be the advantages of such a job -- money, challenge, interest, travel, or what?

4. Where did you get the idea you would like to work at ....? How long have you had the idea?

5. What sorts of things does a .... do?

6. Do you know anyone who is a ....? How familiar with her work are you?

7. Have you done anything related to this job? What?

8. Who has talked with you about this job? How extensively?

9. Are you really intending to seek such a job, or are you likely to make other choices later on?

10. How do you plan to prepare for such a job?

11. How does your mother feel about women working outside the home? Has she ever worked outside the home?

12. How does your present schooling help in preparation for such work? What future schooling will be needed?

13. Does your mother encourage you to prepare for a job? Why or why not?

14. How does your father feel about women working? Married women working?

15. Does your father encourage you to prepare for a job? Why or why not?

16. Do you agree with your mother most on this point? Or your father?

APPENDIX C (Continued)

Area of Parent Identification

17. Are there any women you admire considerably and imitate in some ways? Tell me about them, who are they, why you admire them, how you would like to be like them.

18. Are you like your mother? How?

19. Do you do things with your mother? What? How often?

20. How close would you say you are to your mother -- real close, somewhat, so-so, not very, not at all?

21. How does your mother feel about school achievement?

22. Do you agree or disagree with her? How?

23. How does your mother feel about dates for you, parties, clubs or other social life?

24. Do you agree or disagree? How?

25. Are your values and attitudes similar, in general, to those of your mother?

26. Are you like your father? How?

27. Do you do things with your father? What? How often?

28. How close would you say you are to your father -- real close, somewhat, so-so, not very, not at all?

29. How does your father feel about school achievement?

30. Do you agree or disagree with him?

31. How does your father feel about dates for you, parties, clubs, or other social life?

32. Do you agree or disagree? How?

33. Are your values and attitudes similar, in general, to those of your father?

34. Do you know what the word "identify" means in regard to being close to people? (Explain) Would you say you identify most with your mother, father, both parents, teachers, or friends your age?

35. Are your values more like those of your friends or like those of your parents?

APPENDIX C (Continued)

Area of School Identification

36. In school, what subjects do you like most? Why?
37. In school, what subjects do you like next most? Why?
38. What subject do you like least? Why?
39. What subject do you like next least? Why?
40. Do you think it is important to study hard in school? Why or why not?
41. How will what you are studying now make a difference to you in later life?
42. What kinds of grades do you get? Are you happy with your grades?
43. Do you think it is important to get good grades? Why?
44. What kinds of girls do teachers like to have in class?
45. Are you that kind? Do you want to be?
46. Do you like this kind of girl? Why?
47. What do your teachers think of you?
48. How much does it matter to you?
49. Have you any favorite teachers? Who?
50. What do you like about them?
51. Have you any "unfavorite" teachers?
52. What do you dislike about them?
53. Are you friendly outside of class with any teachers? In what ways?
54. Do you have any teacher with whom you identify particularly? In what ways?

APPENDIX C (Continued)

Area of Peer Identification

55. What kinds of girls do you like to be friends with?

56. Are these girls good students? Tell me about them?

57. What kinds of girls are best liked by most girls?

58. Do most girls like other girls who are good students?

59. Are good students admired, accepted, or considered square by most of the students here?

60. What makes for popularity for girls with other girls?

61. What kinds of girls do the boys like?

62. Do you agree?

63. How do most of your friends feel about school work -- work very hard, enough to get by, or what?

64. How does most of the total student body feel about school work -- work very hard, enough to get by, or what?

65. What organizations are you in? What leadership positions do you have or have you had?

66. What do you like to do for recreation?